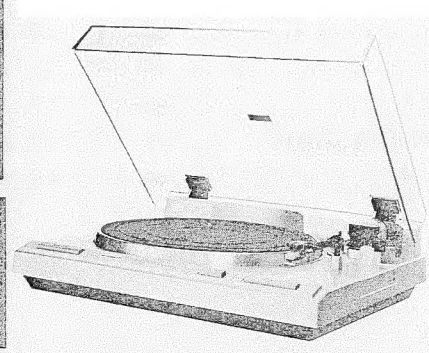
PIONEER

Service Manual

CIRCUIT & MECHANISM DESCRIPTIONS REPAIR & ADJUSTMENTS



The photo shows the model PL-S50.

ORDER NO.
ARP-287-0

STEREO TURNTABLE

PL-S50
PL-740

MODEL PL-S50 COMES IN FIVE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KUT	AC 120V only	U. S. A model (Without cartridge)
KCT	AC 120V only	Canada model (Without cartridge)
R	AC 110V ~ 120V and 220V ~ 240V (Switchable)	General export model
R/G	AC110V ~ 120V and 220V ~ 240V (Switchable)	U. S. Military model
WP	AC 220 V ~ 240V	Australia model

MODEL PL-740 COMES IN SIX VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	AC 120V only	U. S. A model
R	AC 110V ~ 120V and 220V ~ 240V (Switchabel)	General export model
R/G	AC 110V ~ 120V and 220V ~ 240V (Switchable)	U. S. Military model
WE	AC 220V ~ 240V	Europe model
WP	AC 220V ~ 240V	Australia model
WB	AC 220V ~ 240V	United kingdom model

- This service manual is applicable to the PL-S50/KUT type.
- Both model PL-S50 and PL-740 have the same basic mechanism and performance. The only difference is in appearance.
- For servicing the PL-S50/KCT, R, R/G, WP types, and PL-740/KU, R, R/G, WE, WB and WP types, please see page 31 ~ 36.
- Ce manuel d'instruction se rerère au mode de réglage en français.
- Cste manual de servicio trata del método de ajuste escrito en español.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS [USA] INC. 1925 E. Dominguez St., Long Beach, California 90810 U.S.A.
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia

FG © APR. 1983 Printed in Japan

CONTENTS

1. SPECIFICATIONS 2
2. PANEL FACILITIES 3
3. DISASSEMBLY 4
4. ELECTRICAL PARTS LIST 5
5. P. C. BOARD CONNECTION DIAGRAM 7
6. SCHEMATIC DIAGRAM 9
7. EXPLODED VIEWS 11
8. BLOCK DIAGRAM 17
9. CIRCUIT DESCRIPTIONS 18
10. PACKING 19
11. ADJUSTMENTS 20
12. PRECAUTIONS FOR REASSEMBLY 26
13. FOR PL-S50/KCT, R, R/G AND WP TYPES .. 31
14. FOR PL-740/KU, R/G, WE, WB AND WP TYPES 33
15. SAFETY INFORMATION 36

1. SPECIFICATIONS

Motor and Turntable

Drive System ..... Direct-drive
Motor ..... Quartz PLL Hall motor
Turntable Platter ..... 304 mm diam. aluminum alloy die-cast
Speeds ..... 33-1/3 and 45 rpm
Wow and Flutter ..... Less than *0.012% (WRMS)
0.025% (WRMS)
±0.035% WTD Peak (DIN)
Values marked with an "*" designate the wow and flutter for motor, and do not include the cartridge or tonearm load.
Signal-to-Noise-Ratio ..... More than 78 dB (DIN-B)
(with Pioneer cartridge model PC-5MC)

Tonearm

Type ..... Static-balance type, Straight pipe arm
Effective Arm Length ..... 221 mm
Overhang ..... 15.5 mm
Usable Cartridge Weight ..... 3 g (min.) to 8 g (max.)

PC-5MC Specifications

Type ..... Moving coil type
Stylus ..... 0.5 mil diamond (PN-5 MC)
Output Voltage ..... 2.2 mV
(1 kHz, 5 cm/s LAT. Peak)
Tracking Force ..... 1.7 g to 2.3 g (proper 2 g)
Frequency Response ..... 10 to 32,000 Hz
Recommended Load ..... 50 kΩ
Weight ..... 3.3 g

Subfunctions

Auto lead in, Auto return, Auto cut, Quick play, Anti-skating, Arm elevation, Tracking-force direct-read-out, Record detection, Auto disc size selector (17 cm, 30 cm), Free stop hinges.

Miscellaneous

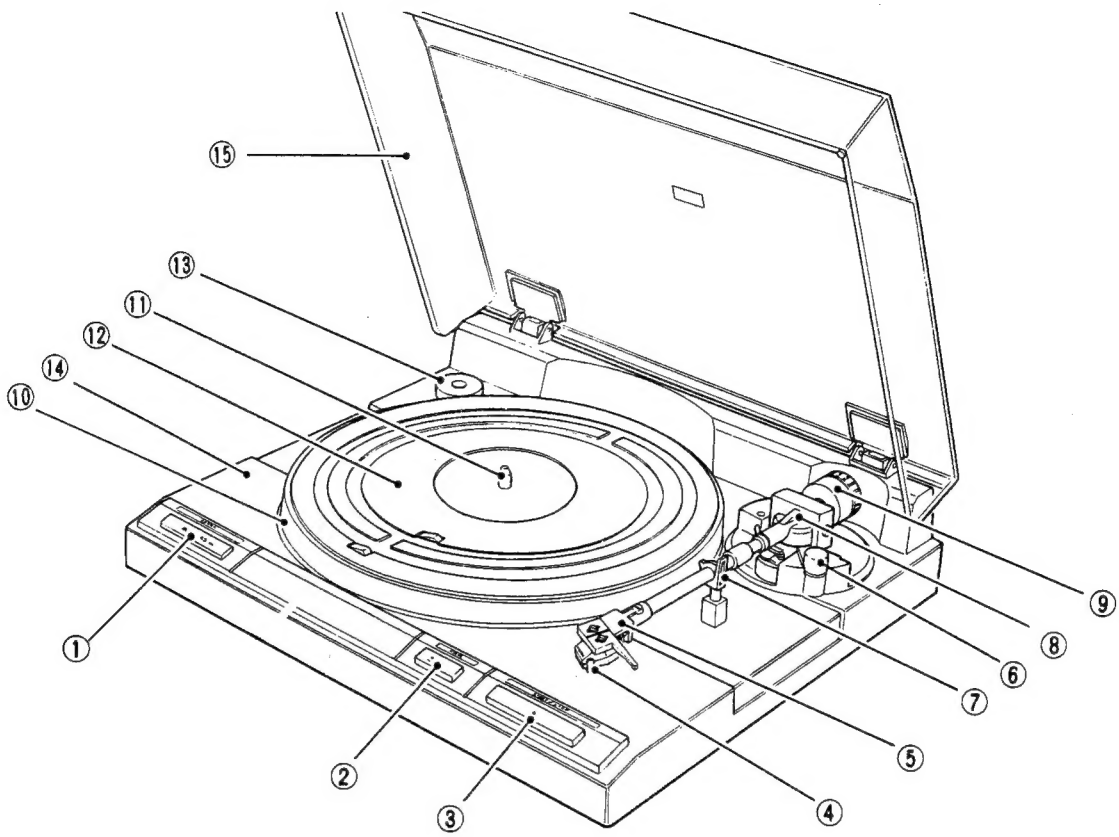
Power Requirements
WE, WB, WP models .....AC 220 – 240 V ~, 50, 60 Hz
KUT, KCT models ..... AC 120V~, 60 Hz
R, R/G models ..... 110 – 120 V/220 – 240 V~
(switchable), 50, 60 Hz
Power Consumption
WE, WB, WP models 8W
KUT, KCT models 8W
R, R/G models 5W
Dimensions ..... 420 (W) x 118 (H) x 365 (D) mm
16-1/2 (W) x 4-5/8 (H) x 14-3/8 (D) in.
Weight ..... 5.4 kg/11 lb 9oz

Accessories

EP Adapter 1
Operating Instructions 1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.

2. PANEL FACILITIES



① SPEED SWITCH

Set this switch in accordance with the speed of the record which is to be played.
[33] (released position): For 33-1/3 rpm records.
[45] (depressed position): For 45 rpm records.

② ARM ELEVATION SWITCH

- Use the switch to manual play.
- Use the switch to suspend record play temporarily.
- Use the switch when changing the tracks during actual play.
  Depressed position:
  The tonearm rises (the stylus moves away from the record).
  Released position:
  The tonearm descends (the stylus is lowered onto the record).

③ START/STOP SWITCH

Press this switch when starting auto play or when stopping play.

④ CARTRIDGE (PC-5MC)

NOTE:
A cartridge is not provided with the KUT and KCT models and so your own cartridge should be mounted, following the instructions laid down in CARTRIDGE MOUNTING.

⑤ HEADSHELL

⑥ ANTI-SKATE CONTROL

This is rotated when performing the anti-skating adjustment.

⑦ ARM REST

This serves to hold and clamp the tonearm. When moving the tonearm, release the clamp.

⑧ TONEARM

⑨ TRACKING FORCE ADJUSTMENT WEIGHT

This is used when adjusting the tracking force.

⑩ PLATTER

⑪ PLATTER SHAFT

⑫ RUBBER MAT

⑬ EP ADAPTER

This is used when playing records without a "middle".

⑭ CABINET

⑮ DUST COVER

3. DISASSEMBLY

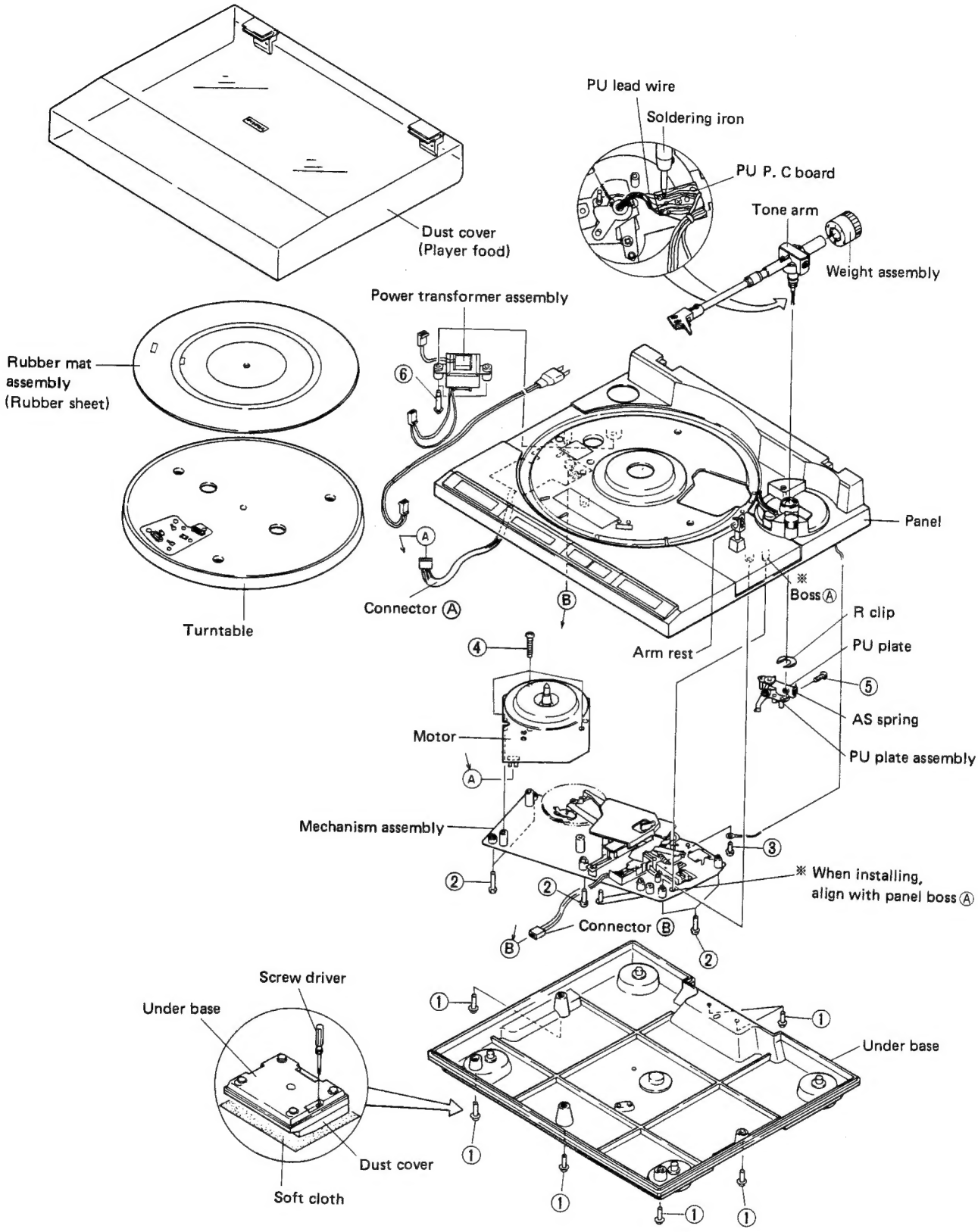


Fig. 3-1 Section disassembly

- **Mechanism Ass'y and Motor**
  1. Turn on the turntable and free the mechanism.
  2. Fasten the tone arm to the arm rest.
  3. Remove the rubber sheet and turntable.
  4. Close the player hood and turn the player upside down and place it on a soft cloth so that the player hood is not damaged.
  5. Remove the seven screws ① , and remove the under base.
  6. Remove five screws ② and one screw ③ .
  7. Disconnect connectors Ⓐ and Ⓑ .
     The mechanism ass'y can be removed from the panel.
  8. Remove the three screws ④ , and remove the motor.

See pages 28 and 29 for the parts installation and assembly precautions.

- **Tone Arm**
  1. Remove the mechanism ass'y from the panel.
  2. Using a soldering iron, disconnect the PU lead wires (arm lead wires) from the PU terminal board.
  3. Remove the PU plate ass'y AS spring.
  4. Remove the one screw ⑤ , and remove the PU plate ass'y from the tone arm.
  5. Remove the R clip.
  6. Turn the player onto its side, remove the arm reset clamp, and remove the tone arm from the panel.

- **Power Transformer Ass'y**
  Remove the two screws ⑥ .

4. ELECTRICAL PARTS LIST

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω	*56 × 10¹*	*561 .....*	*RD¼PS 5 6 1 J*
47kΩ	*47 × 10³*	*473 .....*	*RD¼PS 4 7 3 J*
0.5Ω	*0R5 .....*		*RN2H 0 R 5 K*
1Ω	*010 .....*		*RS1P 0 1 0 K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621 ....*	*RN¼SR 5 6 2 1 F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★ .*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

MISCELLANEOUS PARTS

P. C. BOARD ASSEMBLY

Mark	Part No.	Symbol & Description
⚠	XWR-050	Power supply assembly
	XWS-021	Speed selector assembly

OTHERS

Mark	Part No.	Symbol & Description	
★★	PXM-126		Motor
⚠ ★★	PSF-020	S1	Microswitch
★	PSG-048		Push switch
⚠	PDG-206		AC power cord assembly
	PXB-345		PU cord assembly
⚠ ★	PTX-042		Power transformer

POWER SUPPLY ASSEMBLY (XWR-050)

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
⚠ ★★	2SD1275	Q1
⚠ ★	PCX-010	D1
★	RD30EB4 (WZ-300) (MZ-300)	D2

CAPACITORS

Mark	Part No.	Symbol & Description
⚠	CKDYE 103P 500	C1, C2
	PCL-043	C3 Electrolytic capacitor (470/50)
	CEA 470M 35L	C4
	CKDYF 103Z 50	C5
	CEA 100M 35L	C6

RESISTORS

Mark	Part No.	Symbol & Description
	RS1PF222J	R1

OTHERS

Mark	Part No.	Symbol & Description
	PDZ30P060FMC	Screw 3 x 6 (For Q1 mounitng)
	PDE-234	Connector assembly (6P)

SPEED SELECTOR ASSEMBLY (XWS-021)

SWITCH

Mark	Part No.	Symbol & Description	
★★	PSG-049	S2	Push switch

OTHERS

Mark	Part No.	Symbol & Description
	PDZ30P060FMC	Screw 3 x 6

MOTOR P. C. BOARD ASSEMBLY (PWM-139)

SEMICONDUCTORS

Mark	Part No.	Symbol & Description	
★★	PA2007	IC1	
★★	PA2008	IC2	
★★	PD1003	IC3	
★	PCX-057	HA, HB	Hall element

CAPACITORS

Mark	Part No.	Symbol & Description
	CCDCH 330J 50	C1
	CQMA 123K 50	C5
	CQPA 473J 50	C8 .
	CKDYF 103Z 50	C2, C4, C9, C11
	CKDYF 223Z 50	C14 – C17
	CCDCH 560J 50	C3
	PCL-046	C6, C7
	CEANL R22M 50	C18
	CEA R47M 50	C19
	CEA 010M 50	C12, C21
	CEA 100M 16	C10
	CEA 100M 35	C22 – C26
	CEA 101M 10	C13
	CSZA R22M 35	C20

RESISTORS

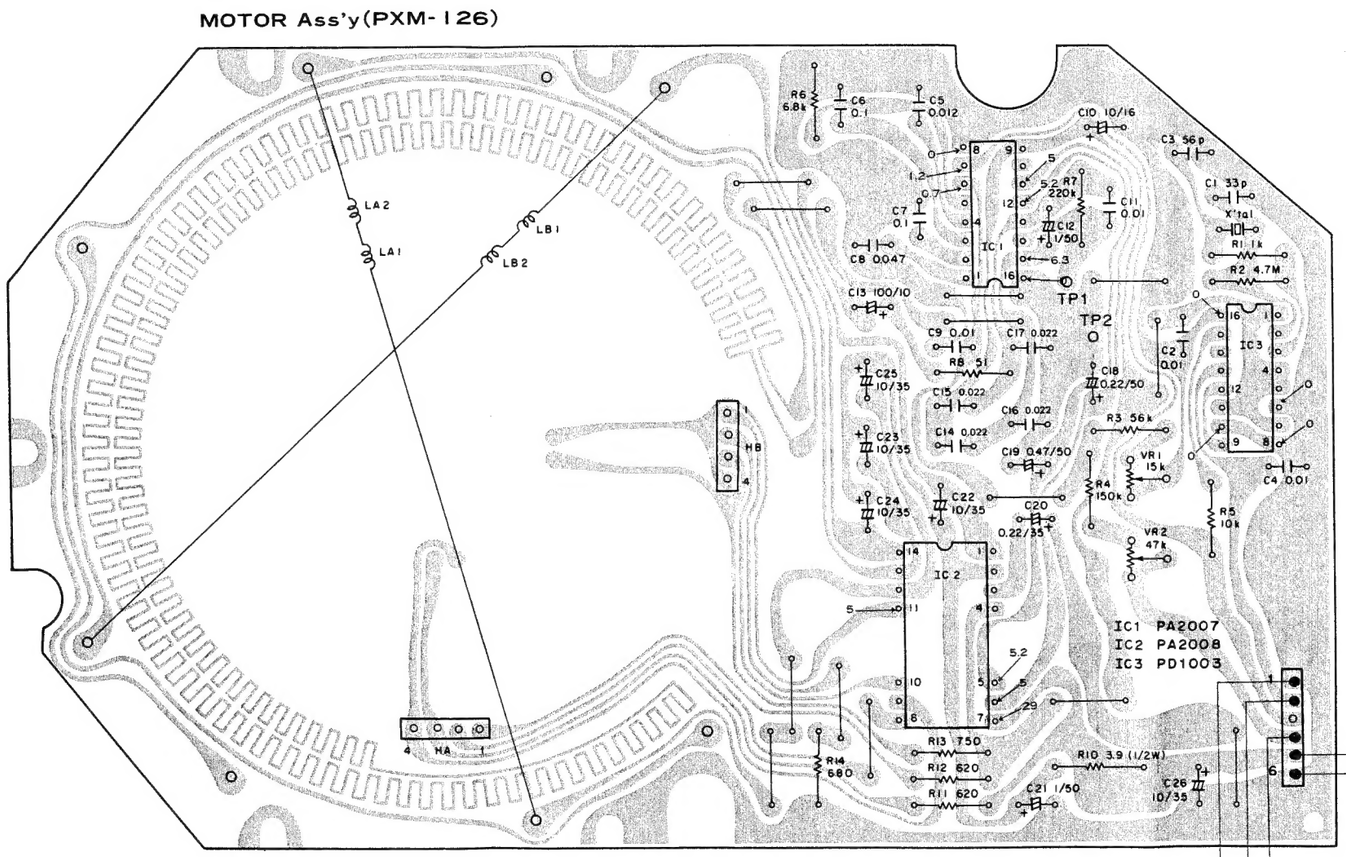
NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

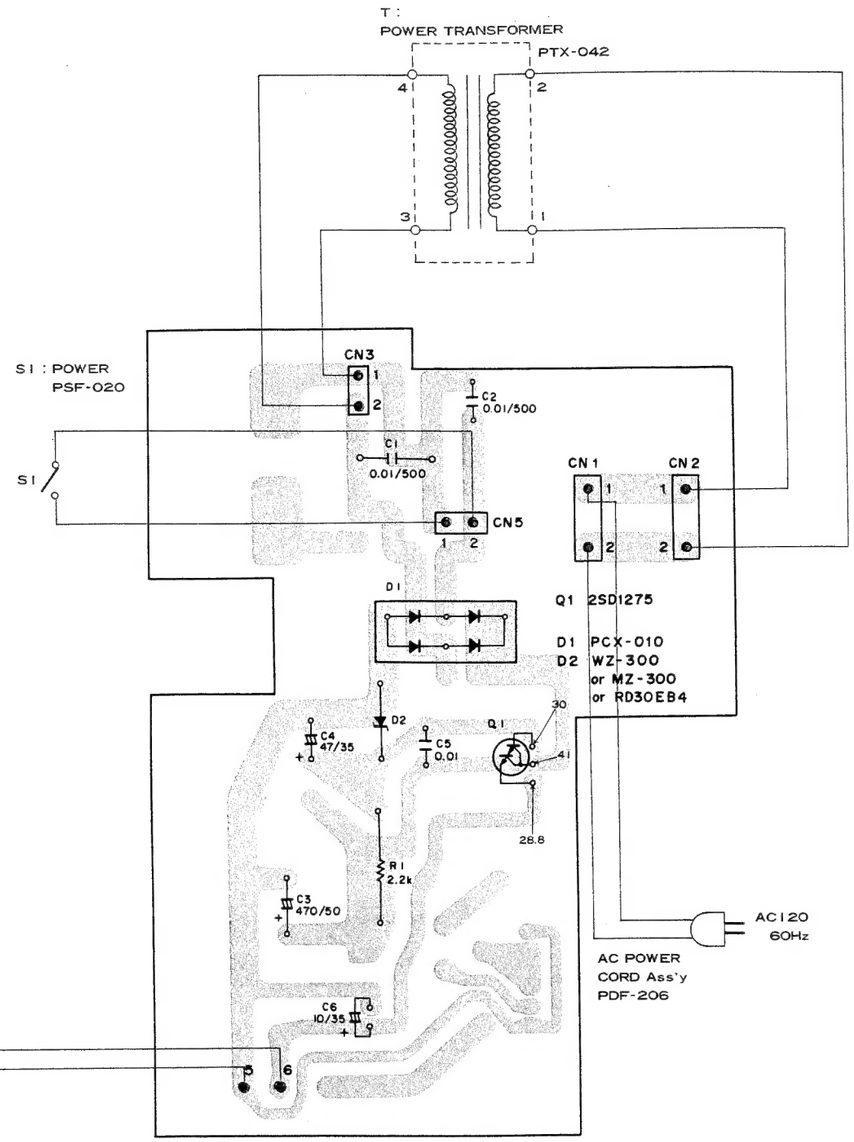
Mark	Part No.	Symbol & Description	
	RD1/2PS3R9J	R10	
	RN1/4PR563G	R3	
	RN1/4PR154G	R4	
	RD1/4PM □□□ J	R1, R2, R5 – R9, R11 – R14	
★	PCP-006	VR1	Semifixed 15k-B
★	PCP-072	VR2	Semifixed 47k-B

OTHERS

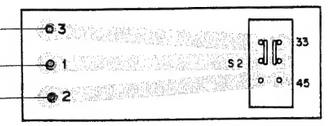
Mark	Part No.	Symbol & Description
	SD-5045-06A	Connector 6P
	RNH-199	Terminal (GND)
★	PSS-003	X'tal

5. P.C. BOARDS CONNECTION DIAGRAM





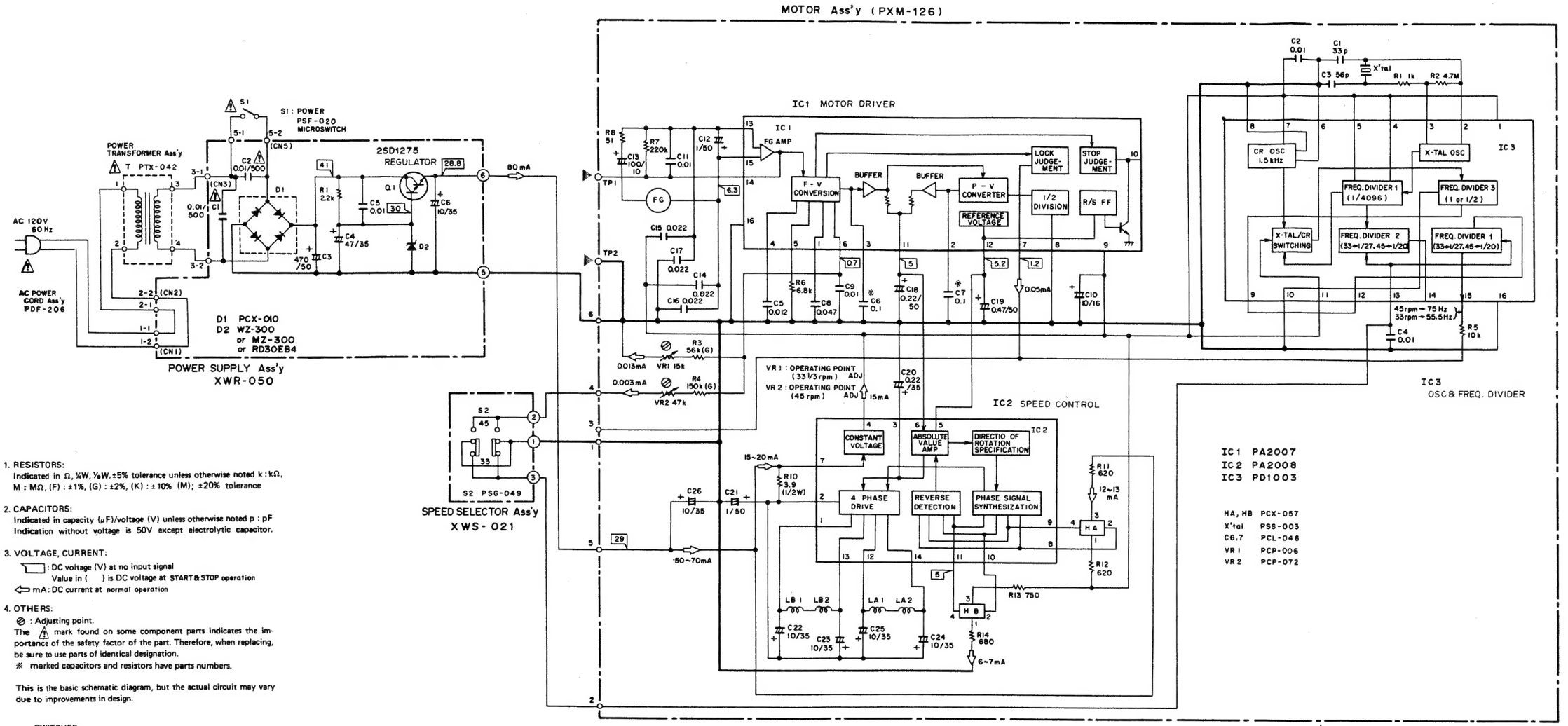
POWER SUPPLY Ass'y(XWR-050)



SPEED SELECTOR Ass'y
(XWS-021)

6. SCHEMATIC DIAGRAM

NOTE:
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.



1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at START & STOP operation
⇦ mA : DC current at normal operation

4. OTHERS:
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:

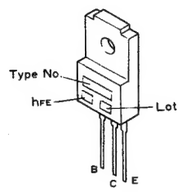
OUTSIDE OF P.C. BOARD
S1 : POWER ON — OFF

SPEED SELECTOR ASSEMBLY
S2 : SPEED 33 1/3rpm — 45rpm

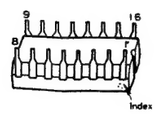
The underlined indicates the switch position.

External Appearance of Transistors and ICs

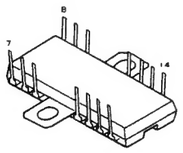
2SD1275



PA2007
PD1003

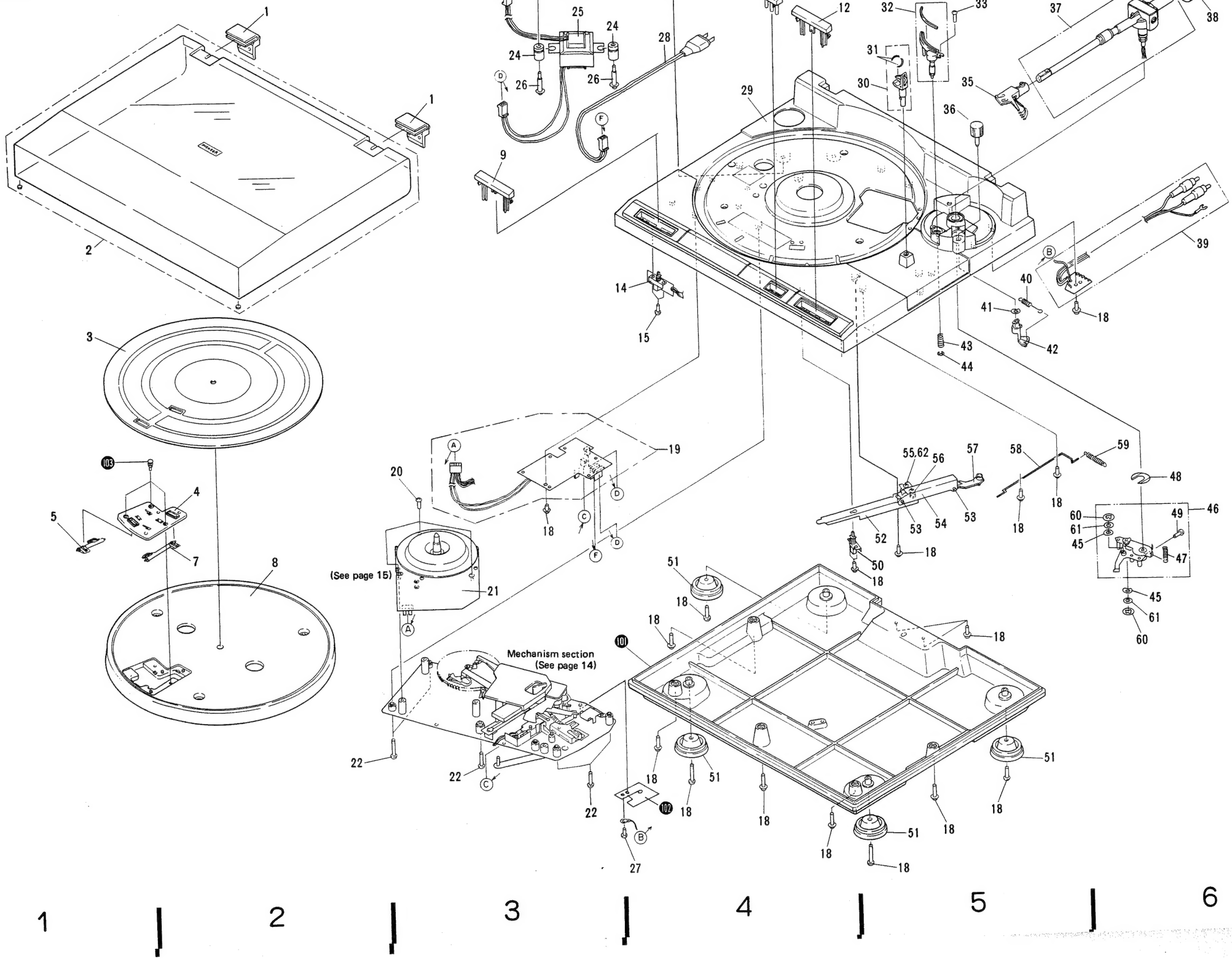


PA2008



7. EXPLODED VIEWS

7.1 EXTERIOR



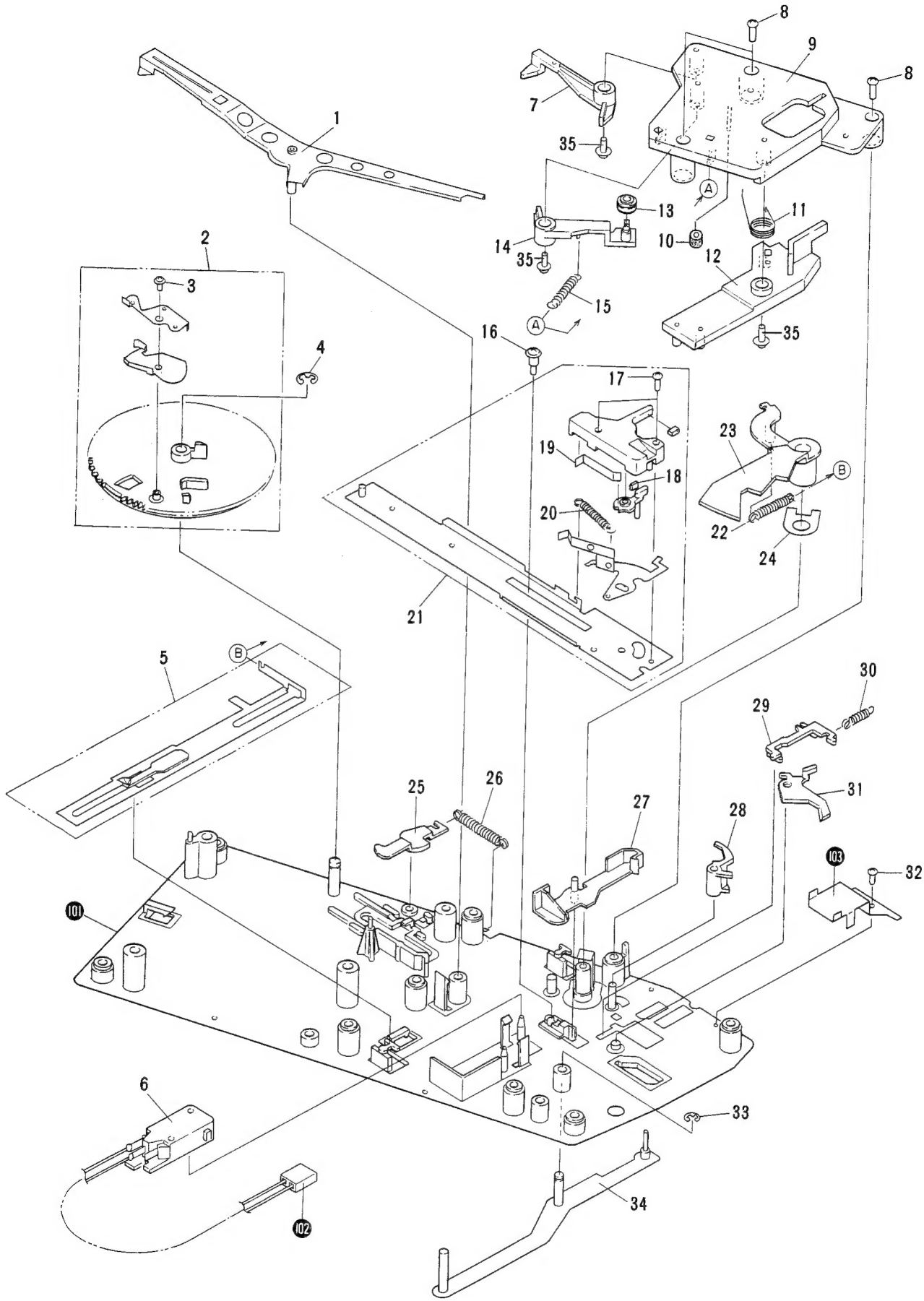
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Parts List of Exterior

Mark	No.	Part No.	Description
	1.	PXB-321	Hinge assembly
	2.	PNV-046	Dust cover
	3.	PEA-066	Rubber mat assembly
	4.	PNY-059	Hook holder
	5.	PXV-038	Size detector unit
	6.		. . .
	7.	PXV-037	Record detector unit
	8.	PNR-183	Turntable platter
	9.	PAD-136	SP button unit
	10.		. . .
	11.	PAD-135	EV button unit
	12.	PAD-134	S/S button unit
	13.		. . .
	14.	XWS-021	Speed selector assembly
	15.	PPZ30P080FMC	Screw 3 x 8
	16.		. . .
	17.		. . .
	18.	IPZ30P100FMC	Screw 3 x 10
⚠	19.	XWR-050	Power supply assembly
	20.	PBA-108	Screw 3 x 25
	21.	PXM-126	Motor assembly
	22.	IPZ30P290FMC	Screw 3 x 29
	23.		. . .
	24.	PEB-250	Rubber
⚠ ★	25.	PTX-042	Power transformer assembly
	26.	PBA-144	Clamp screw
	27.	PDZ30P060FMC	Screw
⚠	28.	PDF-206	AC power cord assembly
	29.	PNY-118	Panel
	30.	PXB-332	Arm rest assembly
	31.	PED-021	Cushion (A)
	32.	PXV-033	EV sheet unit
	33.	BPZ26P120FZK	Screw 2.6 x 12
	34.		. . .
	35.	PXB-563	Head shell assembly
	36.	PAC-130	AS knob
	37.	PPD-653	Tone arm assembly
	38.	PXB-583	Weight assembly
	39.	PXB-345	Pu cord assembly
	40.	PBH-292	AS spring
	41.	PBK-069	AS spring washer
	42.	PNY-044	AS plate
	43.	PBH-355	EV spring
	44.	YE50S	Washer
	45.	PNC-227	PU spring washer
	46.	PXB-323	PU plate assembly
	47.	PBH-373	PU plate spring
	48.	PBK-059	R clip
	49.	PMD40P100FMC	Screw 4 x 10
★★	50.	PSG-048	Push switch
	51.	PEB-258	Insulator
	52.	PNC-311	EV lever (A)
	53.	PLB-210	EV lever shaft
	54.	PNC-312	EV lever (B)
	55.	TMZ30P120FMC	Screw 3 x 120
	56.	PBH-375	EV lever spring
	57.	PNY-130	EV lever (C)
	58.	PBH-359	S/S rod
	59.	PBH-368	S/S rod spring
	60.	YS40FBT	Washer
	61.	WC40FMC	Washer
	62.	YU30FBT	Nut
		PEC-034	Cord clamper (for AC power cord)
	101.		Under base
	102.		Shield palte
	103.		Rivet

7. 2 MECHANISM SECTION (SUB-PANEL ASSEMBLY)



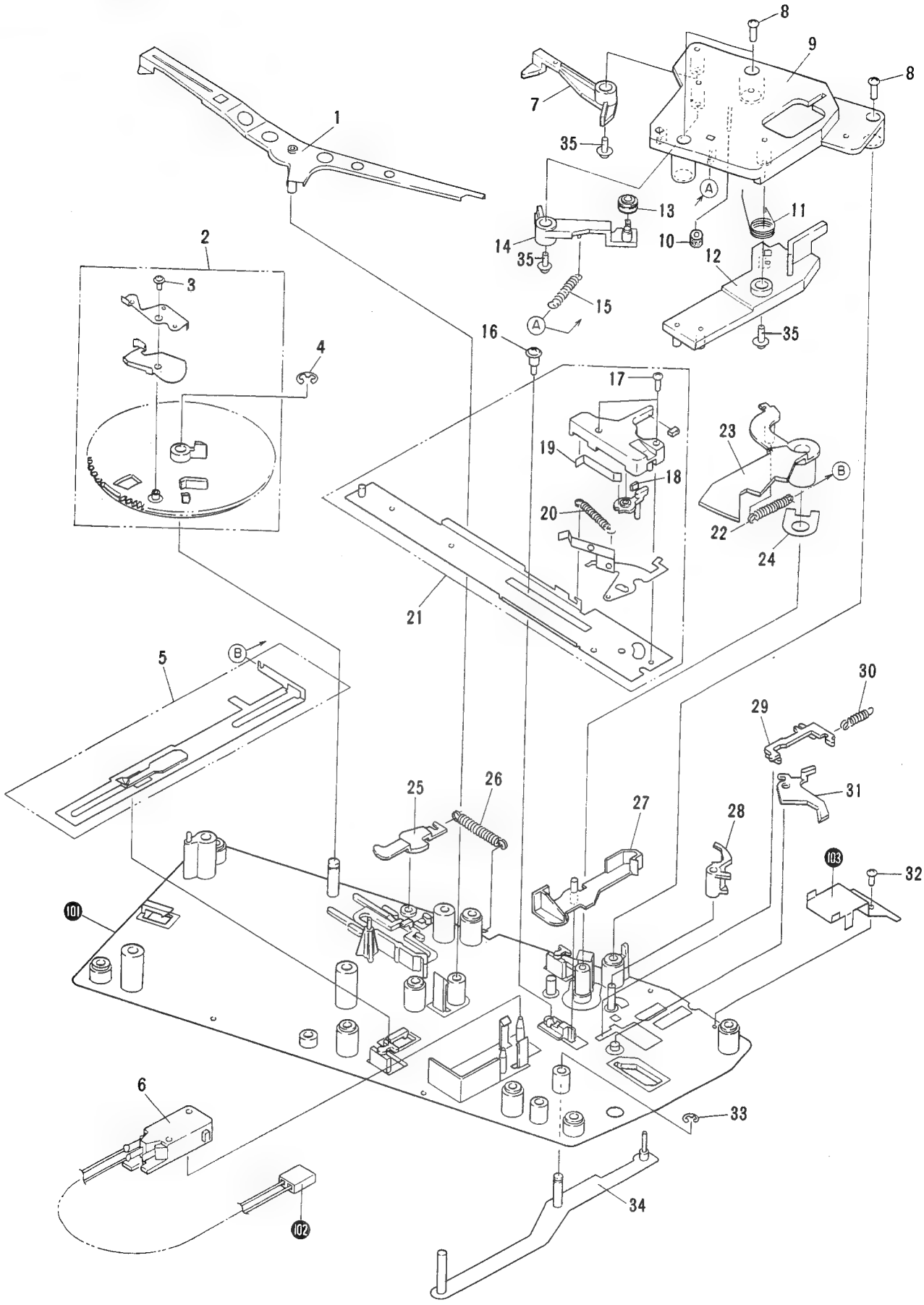
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ *GENERALLY MOVES FASTER THAN* ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Parts List of Exterior

Mark	No.	Part No.	Description
	1.	PXB-321	Hinge assembly
	2.	PNV-046	Dust cover
	3.	PEA-066	Rubber mat assembly
	4.	PNY-059	Hook holder
	5.	PXV-038	Size detector unit
	6.		. . .
	7.	PXV-037	Record detector unit
	8.	PNR-183	Turntable platter
	9.	PAD-136	SP button unit
	10.		. . .
	11.	PAD-135	EV button unit
	12.	PAD-134	S/S button unit
	13.		. . .
	14.	XWS-021	Speed selector assembly
	15.	PPZ30P080FMC	Screw 3 x 8
	16.		. . .
	17.		. . .
	18.	IPZ30P100FMC	Screw 3 x 10
⚠	19.	XWR-050	Power supply assembly
	20.	PBA-108	Screw 3 x 25
	21.	PXM-126	Motor assembly
	22.	IPZ30P290FMC	Screw 3 x 29
	23.		. . .
	24.	PEB-250	Rubber
⚠	★ 25.	PTX-042	Power transformer assembly
	26.	PBA-144	Clamp screw
	27.	PDZ30P060FMC	Screw
⚠	28.	PDF-206	AC power cord assembly
	29.	PNY-118	Panel
	30.	PXB-332	Arm rest assembly
	31.	PED-021	Cushion (A)
	32.	PXV-033	EV sheet unit
	33.	BPZ26P120FZK	Screw 2.6 x 12
	34.		. . .
	35.	PXB-563	Head shell assembly
	36.	PAC-130	AS knob
	37.	PPD-653	Tone arm assembly
	38.	PXB-583	Weight assembly
	39.	PXB-345	Pu cord assembly
	40.	PBH-292	AS spring
	41.	PBK-069	AS spring washer
	42.	PNY-044	AS plate
	43.	PBH-355	EV spring
	44.	YE50S	Washer
	45.	PNC-227	PU spring washer
	46.	PXB-323	PU plate assembly
	47.	PBH-373	PU plate spring
	48.	PBK-059	R clip
	49.	PMD40P100FMC	Screw 4 x 10
	★★ 50.	PSG-048	Push switch
	51.	PEB-258	Insulator
	52.	PNC-311	EV lever (A)
	53.	PLB-210	EV lever shaft
	54.	PNC-312	EV lever (B)
	55.	TMZ30P120FMC	Screw 3 x 120
	56.	PBH-375	EV lever spring
	57.	PNY-130	EV lever (C)
	58.	PBH-359	S/S rod
	59.	PBH-368	S/S rod spring
	60.	YS40FBT	Washer
	61.	WC40FMC	Washer
	62.	YU30FBT	Nut
		PEC-034	Cord clamper (for AC power cord)
	101.		Under base
	102.		Shield palte
	103.		Rivet

7. 2 MECHANISM SECTION (SUB-PANEL ASSEMBLY)



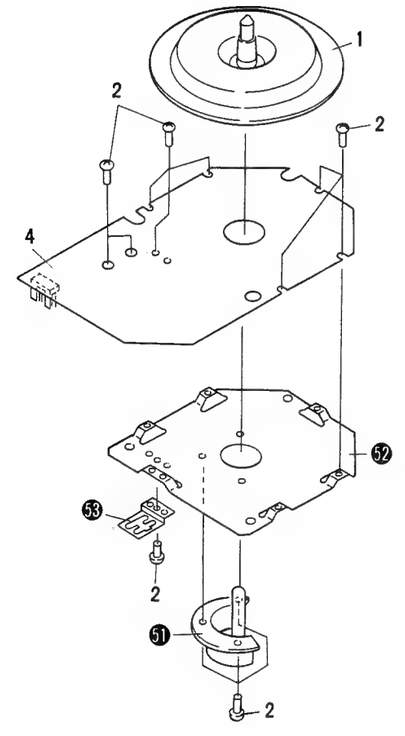
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Parts List of Mechanism Section (Sub-Panel Assembly)

Mark	No.	Part No.	Description
	1.	PXT-446	Dectector lever unit
	2.	PYY-100	Cam assembly
	3.	PBA-126	Screw M2.6 x 8
	4.	YE40S	Washer
	5.	PXV-035	Select lever unit
⚠ ★★	6.	PSF-020	Microswitch
	7.	PNY-058	Timing lever
	8.	PBA-108	Screw M3 x 25
	9.	PNY-054	Stay
	10.	PED-027	Cushion
	11.	PBH-357	Hook guide spring
	12.	PNY-055	Hook guide
	13.	PXV-044	Roller unit
	14.	PNY-056	Click lever
	15.	PBH-358	Click lever spring
	16.	PBA-123	Screw
	17.	PMZ26P100FMC	Screw 2.6 x 10
	18.	PED-021	Cushion (A)
	19.	PBK-038	Click plate spring
	20.	PBH-224	Start plate spring
	21.	PXB-252	Driving plate assembly
	22.	PBH-356	Select lever spring
	23.	PNY-053	Index cam
	24.	PBK-039	Spring washer
	25.	PNX-035	Lock plate
	26.	PBH-225	Lock plate spring
	27.	PNX-030	Switch lever
	28.	PNX-031	Switch locker
	29.	PNX-029	Selector
	30.	PBH-223	Reset plate spring
	31.	PNX-028	Reset plate
	32.	PDZ30P060FMC	Screw 3 x 6
	33.	YE30S	Washer
	34.	PXV-036	Start lever unit
	35.	IPZ30P100FMC	Screw 3 x 10
	101.		Sub-panel unit
	102.		Connector assembly (2P)
	103.		Plate

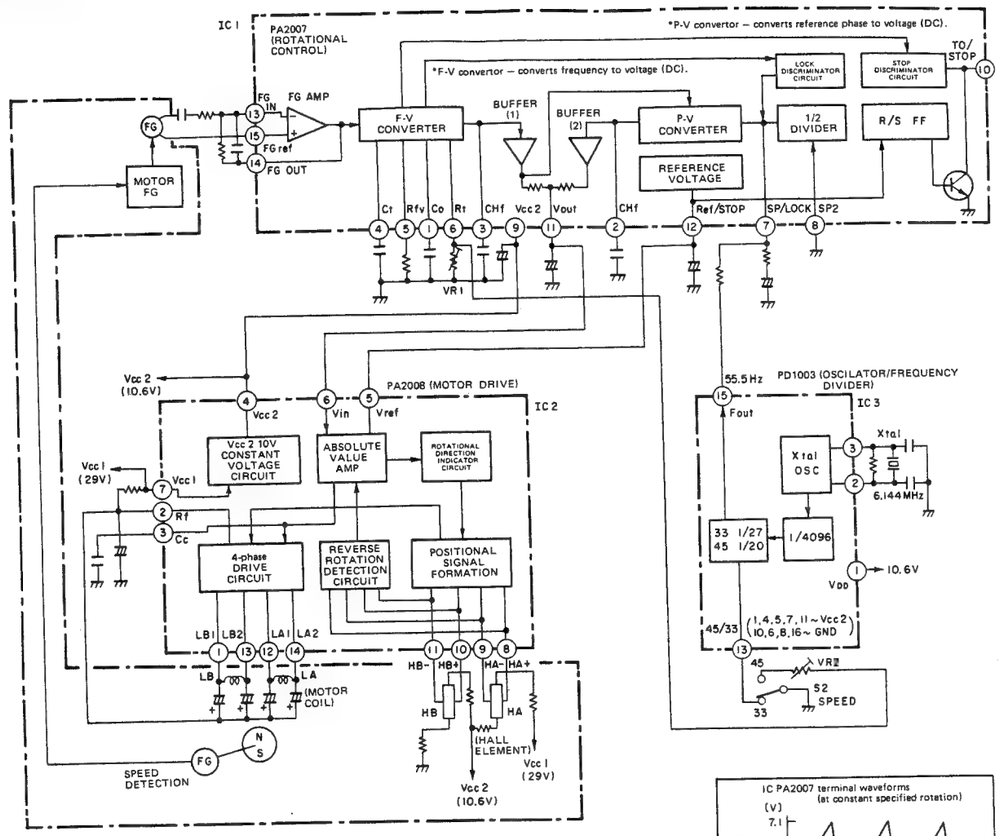
7. 3 MOTOR ASSEMBLY (PXM-127)

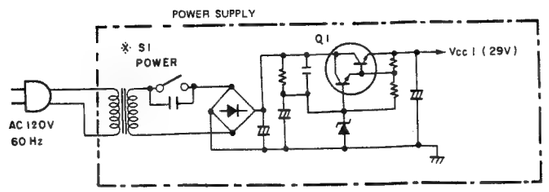


Parts List of Motor Assembly (PXM-126)

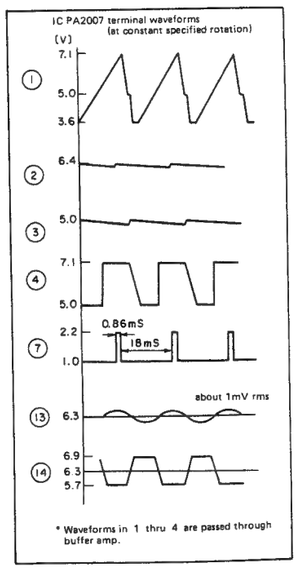
Mark	No.	Part No.	Description
	1.	PXV-026	Rotor unit
	2.	PSZ30P050FMC	Screw 3 x 5
	3.		. . .
	4.	PWM-139	Motor P. C. board assembly
	51.		Spindle base unit
	52.		Base
	53.		Heat sink

8. BLOCK DIAGRAM





*S1 (microswitch) is at the mechanism section.



* Waveforms in 1 thru 4 are passed through buffer amp.

9. CIRCUIT DESCRIPTIONS

Quartz PLL Hall Motor (PXM-126)

This player uses a quartz PLL Hall motor (slotless) which uses a PA2007 for speed control, PA2008 for motor drive, and a PD1003 IC for oscillation and division.

- **Motor (Turntable) Rotation**

Refer to the block diagram when reading the following description.

Drive circuit

1. At automatic operation, the microswitch S1 (POWER) inside the mechanism section is turned on by depressing the START/STOP switch. At manual operation, S1 is turned on by moving the tone arm over the record.
2. When S1 is turned on, 29V is applied to pin ⑦ of motor drive IC PA2008 (IC2) and the Hall element.
3. Since the PXM-126 is a slotless motor, the rotor (magnet) and drive coil positions are detected by two Hall elements, the current flowing in the drive coil is switched electronically, and the motor is rotated.
   When a voltage is applied to Hall elements HA and HB, a plus voltage (HA+) and a minus voltage (HA−) are generated by the magnetic field of the adjacent rotor. (Hall elements HA and HB are installed at positions at which their phases are electrically 90° apart.)
4. This voltage is applied to the position signal combination circuit of PA2008, and the waveform is shaped as shown in Fig. 9-1 (a). The signals are further combined to produce a staircase signal such as that shown in Fig. 9-1 (b).
5. This staircase signal is input to a four-phase drive circuit and the current flowing in drive coils LA and LB is switched alternately. Since this generates a magnetic field in the drive coils, the attraction or repulsion of the coil pole and rotor pole causes the motor to begin to rotate.

- **Constant Speed**

Comparison control section

6. When the motor starts to rotate, the signal from the frequency generator (FG) at the motor rotating section is shaped into a 50% duty square wave by the waveform shaping block and is applied to pin ⑮ (RG ref) and pin ⑬ (FG IN) of PA2007. The frequencies obtained here are 55.55 Hz for 33 rpm and 75 Hz for 45 rpm.
7. This signal is amplified by the FG Amp of PA2007, converted to a voltage by the F-V converter, and applied to buffer amp 1 .
8. On the other hand, the 6.144 MHz signal of the crystal oscillator installed outside the oscillation and division IC PD1003 is divided to 1/4096 by the division circuit of PD1003. This signal is converted to phase comparison sampling pulses by a division ratio selection circuit. At 45 rpm, the signal is divided to 1/20 (75 Hz) and for 33 rpm, the signal is divided to 1/27 (55.5 Hz), and applied to pin ⑦ of PA2007.
9. The sampling pulses from the PD1003 and the phase of the frequency corresponding to the motor speed are compared by the P-V converter of PA2007 and the voltage corresponding to the phase difference is applied to buffer amp 2 .
   The buffer amp 1 and 2 outputs are combined and the output (pin ⑪) for comparison with the reference voltage is sent to pin ⑥ of the absolute value amp of PA2008.

Absolue value amp and rotating direction command circuit

10. At absolute value amp PA2008, the input signal is compared with the reference voltage (Vref) from pin ⑫ of PA2007 and the motor winding current is generated according to the voltage difference.
11. Since the speed does not reach the rated speed when the motor is started, the voltage is lower than the reference voltage (Vref; 5.15V). Therefore, the absolute value amp gives a command which generates a positive torque to the rotating direction command circuit so the motor speed is raised. Then the motor gradually reaches constant speed. (See Fig. 9-2.)
    (When the motor speed is faster than the rated speed, since the voltage is higher than the reference voltage, the absolute value amp applies reverse braking torque to the rotating direction command circuit so the motor speed drops. Then the speed returns to the rated speed.)

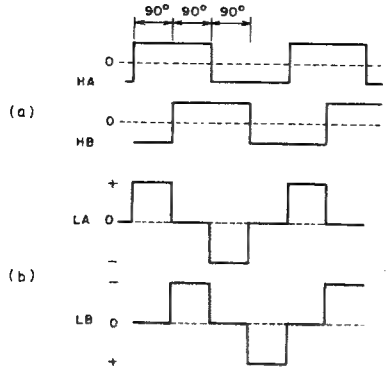


Fig. 9-1 Drive circuit waveforms

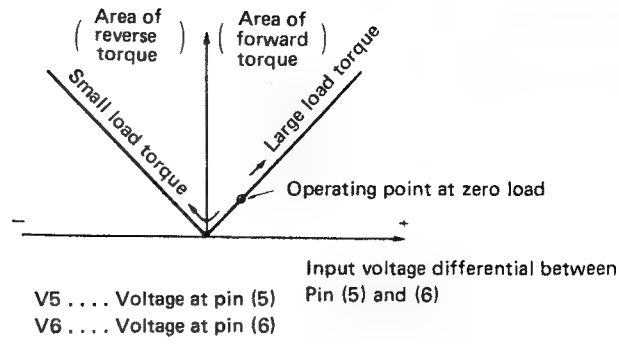
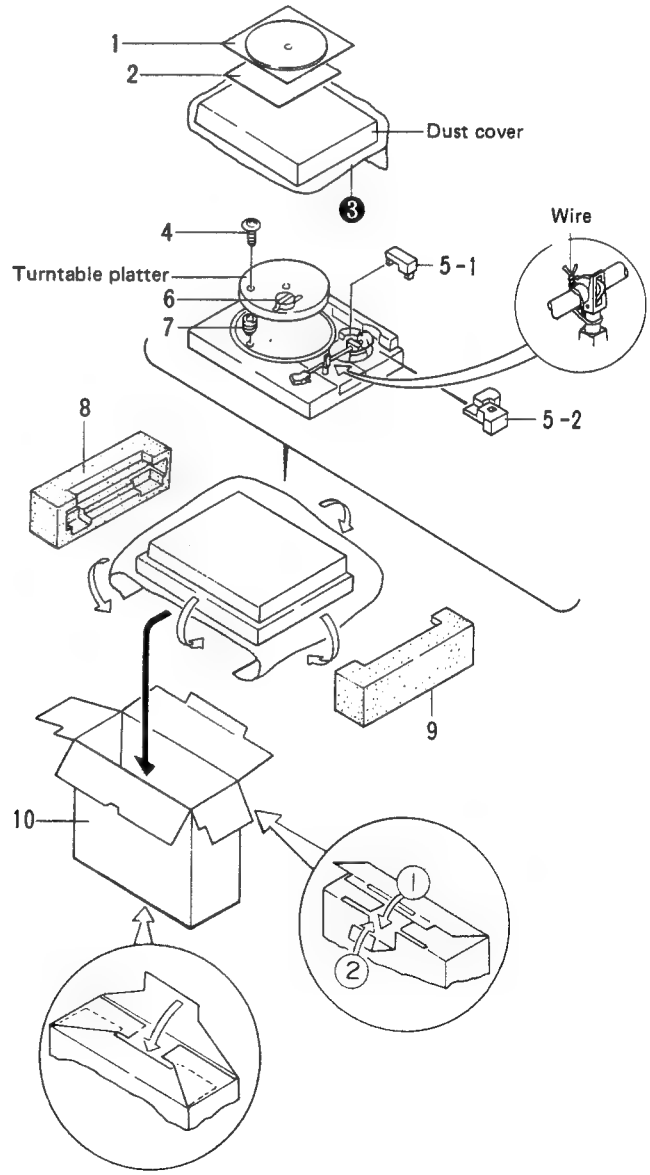


Fig. 9-2 PA2008 absolute value amp input/output response.

10. PACKING

Parts List

Mark	No.	Part No.	Description
	1.	PEA-066	Rubber mat assembly
	2.	PRB-246	Operating instructions
	3.		Sheet
	4.	PBA-144	Clamp screw
	5-1.	PHA-161	Weight clamp (A)
	5-2.	PHA-162	Weight clamp (B)
	6.	N93-603	45 adaptor
	7.	PNX-294	Turntable protector
	8.	PHA-156	Side protector (L)
	9.	PHA-157	Side protector (R)
	10.	PHH-095	Packing case

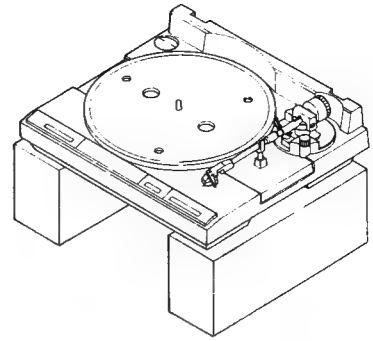


11. ADJUSTMENTS

11. 1 MOTOR OPERATING POINT ADJUSTMENT

Place the record player on blocks as shown in Fig. 11-1 and adjust the motor from the under base.

1. Set the turntable (motor) to 33 1/3 rpm and press the START/STOP switch.
2. Connect the buffer amplifier to pin 1 of IC1 PA2007 of the motor circuit P. C. board unit as shown in Fig. 11-2 and connect the output to an oscilloscope.
3. After the waveform shown in Fig. 11-3 appears on the oscilloscope, adjust the oscilloscope gain so the peak of the sawtooth waveform is at division 5. Then adjust VR1 (33 1/3 rpm) to a:b = 2.7:2.3 as shown in Fig. 11-3. (Be careful because noise enters easily.)
4. At the end of 33 1/3 rpm adjustment, adjust 45 rpm with VR2 as described in 2 and 3 above. Always adjust 33 1/3 rpm first.
   Always adjust 45 rpm even if only 33 1/3 rpm is incorrectly adjusted.
5. Connect an oscilloscope to pin 7 of PA2007 and check that the waveform is 55.5 Hz for 33 1/3 rpm and 75 Hz for 45 rpm.



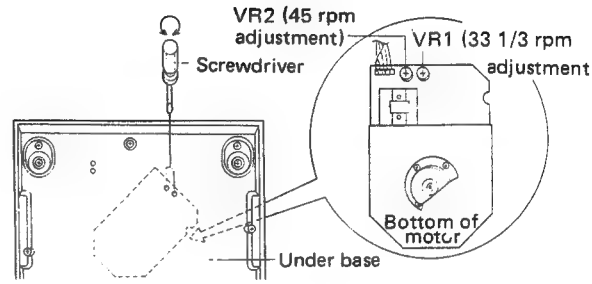


Fig. 11-1 Motor rotation adjustment

11. 2 MECHANISM ADJUSTMENT

- **Stylus Landing Position Adjustment**

When the tone arm doesn't land in the correct position during automatic playback, adjust according to the following procedure.

1. Place a 30 cm record on the platter.
2. Press the START/STOP switch and start automatic playback. Note the direction and amount if the landing point is off. (How many mm to the inside or outside from the record grooves.)
3. Depress the START/STOP switch to return the tone arm to its rest.
4. Press the arm elevation switch to raise the stylus.
5. Move the tone arm to the outside edge of the record by hand.
6. Turn the adjustment screw with a small screwdriver according to the direction and amount checked at item 2 as follows:
   - When the stylus lands at the outside of the record, turn the adjustment screw in the ↷ direction.
   - When the stylus lands at the inside of the record, turn the adjustment screw in the ↶ direction.
     One half turn of the adjustment screws moves the tone arm about 12 mm.

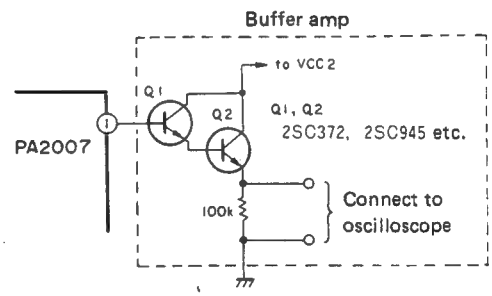


Fig. 11-2 Buffer amp connection

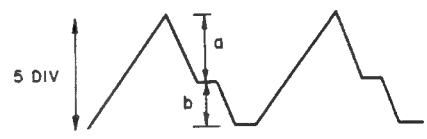


Fig. 11-3 Sawtooth wave adjustment

7. After adjustment, press the PLAY/STOP switch and check if the stylus landing point was correctly adjusted.
   If adjustment is incorrect, repeat items 3 to 6.

Be careful not to damage the record and stylus when making this adjustment.

Adjustment using a test record

(Lowering position adjustment is made with the tone arm on the outside edge of the record.)

30 cm landing point . . . Lands between count 306 and 313.

17 cm landing point . . . Lands between count 175 and 183.

• Auto-Return Position Adjustment

When auto-return occurs too early or too late, make the following adjustments.

1. Check the stylus landing position. If the stylus does not land at the correct position, adjust the landing position.
2. Set the arm elevation switch to UP and turn the auto-return adjustment screw fully counterclockwise.
3. Move the tone arm as far as it will go toward the inside.
4. When the auto-return adjustment screws is turned slowly clockwise, the tone arm will begin to move toward the inside.
5. Stop turning the adjustment screw at the point at which there is a space of 32 mm between the cartridge stylus and the center shaft. (Fig. 11-5)
6. After adjustment, check is auto-return is performed correctly and that the stylus landing position is correct.

• Arm Elevation Height Adjustment

1. Depress the arm elevation switch to lower the arm.
2. Adjust the screw under the turntable so the stylus is 11 mm above the panel. When the adjustment screw is turned counterclockwise, the stylus rises.
3. Depress the arm elevation switch to raise the tone arm.
4. Adjust the screws next to the arm elevation switch so the stylus is 25.5 mm above the panel.

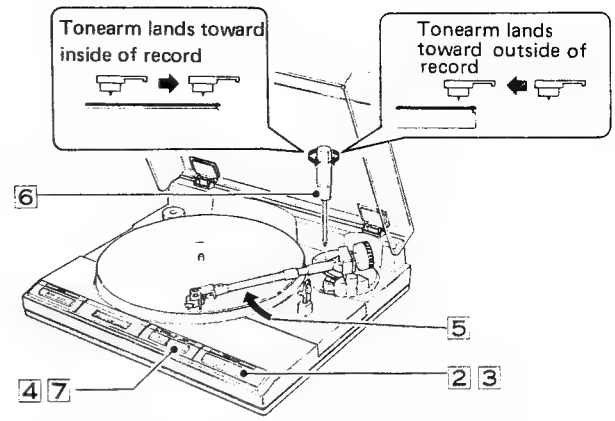


Fig. 11-4 Stylus landing point adjustment

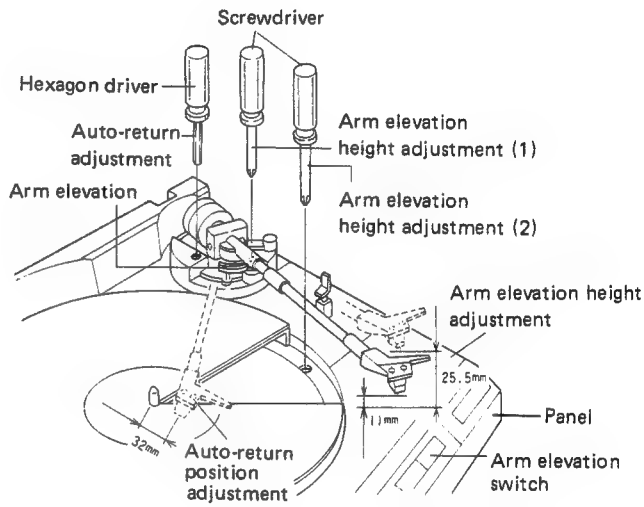


Fig. 11-5 Arm elevation height adjustment and auto-return adjustment

11. RÉGLAGES

11.1 RÉGLAGE DU POINT DE FONCTIONNEMENT DU MOTEUR

Placer le tourne-disque sur des plots, de la manière indiquée à la Fig. 11-1, et régler le moteur depuis le dessous du socle.

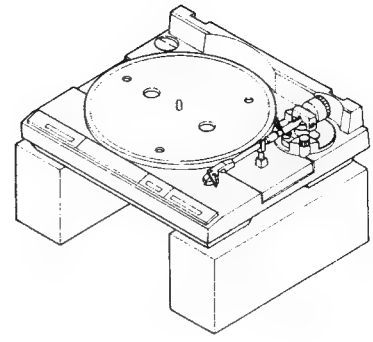
1. Régler le tourne-disque (moteur) sur 33-1/3 tr/min et appuyer sur la touche de marche/arrêt (START/STOP).
2. Raccorder l'amplificateur tampon à la broche 1 de ICI PA2007 sur la carte de circuit imprimé du circuit moteur, comme indiqué à la Fig. 11-2, et raccorder la sortie à un oscilloscope.
3. Lorsque la forme d'onde indiquée à la Fig. 11-3 apparaît sur l'oscilloscope, régler le gain de l'oscilloscope de façon à ce que le sommet de l'onde en dent de scie se situe sur la division 5. Ajuster ensuite VR1 (33-1/3 tr/min) pour a:b = 2,7:2,3, comme indiqué à la Fig. 11-3. (Faire attention car les parasites s'introduisent facilement.)
4. En fin de réglage pour 33-1/3 tr/min, régler VR2 pour 45 tr/min, comme indiqué dans 2 et 3 ci-dessus. Le réglage pour 33-1/3 tr/min doit toujours être effectué en premier.
   Le réglage de 45 tr/min doit toujours être réalisé, même si seul 33-1/3 tr/min est mal réglé.
5. Raccorder un oscilloscope à la broche 7 de PA2007 et vérifier que la fréquence de la forme d'onde soit de 55,5Hz pour 45 tr/min.

11.2 RÉGLAGE DU MÉCANISME

- **Réglage de la position de descente de la pointe de lecture**

Lorsque le bras de lecture ne descend pas sur la position correcte lors de la lecture automatique, réaliser le réglage en suivant la procédure suivante.

1. Placer un disque de 30cm sur le plateau.
2. Appuyer sur la touche de marche/arrêt (START/STOP) et faire débuter la lecture automatique. Noter la direction et la grandeur de l'écart du point de descente. (Nombre de mm vers l'intérieur ou vers l'extérieur du sillon.)
3. Appuyer sur la touche START/STOP pour faire retourner le bras de lecture sur son support.
4. Appuyer sur la touche de relevage du bras pour soulever la pointe de lecture.
5. Déplacer à la main le bras de lecture vers la périphérie du disque.



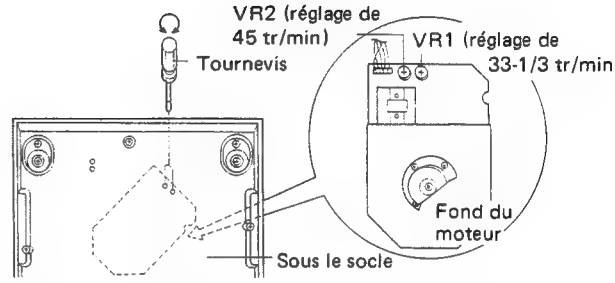


Fig. 11-1 Réglage de la vitesse de rotation du moteur

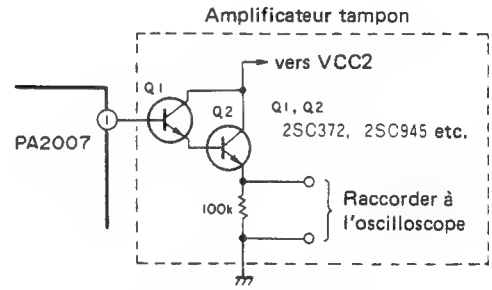


Fig. 11-2 Raccordement de l'amplificateur tampon

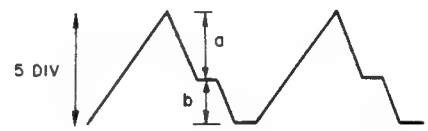


Fig. 11-3 Réglage de l'onde en dent de scie

6. Tourner la vis de réglage à l'aide d'un petit tournevis, en fonction de la direction et de la quantité mesurées lors du point 2, comme suit:
   - Lorsque la pointe de lecture descend vers l'extérieur du disque, tourner la vis de réglage dans le sens
   - Lorsque la pointe de lecture descend vers l'intérieur du disque, tourner la vis de réglage dans le sens

   Un demi-tour de la vis de réglage correspond à un déplacement d'environ 12mm du bras de lecture.
7. Après le réglage, appuyer sur la touche START/STOP et vérifier si le réglage de la position de descente a été correctement effectué.
   Si le réglage n'est pas correct, répéter les étapes 3 à 6.

Prendre soin de ne pas endommager le disque ni la pointe de lecture en réalisant ce réglage.

Réglage au moyen d'un disque d'essai

(Le réglage de la position d'abaissement est réalisé avec le bras de lecture placé sur la périphérie du disque.)

Point de descente
pour 30cm ..... Descente entre les valeurs 306 et 313.

Point de descente
pour 17cm ..... Descente entre les valeurs 175 et 183.

- **Réglage de la position de retour automatique**

Réaliser les réglages suivants lorsque le retour automatique se produit tôt ou trop tard.

1. Contrôler la position de descente de la pointe de lecture. Si la pointe de lecture ne descend pas sur la position correcte, ajuster la position de descente.
2. Régler la touche de relevage du bras sur la position "UP" et tourner la vis de réglage du retour automatique à fond dans le sens contraire des aiguilles d'une montre.
3. Déplacer le bras de lecture le plus possible vers l'intérieur.
4. Lorsque la vis de réglage du retour automatique est tournée lentement dans le sens des aiguilles d'une montre, le bras de lecture commence à se déplacer vers l'intérieur.
5. Arrêter de tourner la vis de réglage sur le point pour lequel il y a un écart de 32mm entre la pointe de lecture et l'axe central. (Fig. 11-5)
6. Après le réglage, vérifier que le retour automatique se réalise correctement et que la position de descente de la pointe est correcte.

- **Réglage de la hauteur de relevage du bras de lecture**

1. Appuyer sur la touche de relevage du bras pour abaisser le bras.
2. Régler la vis située sous le tourne-disque de façon à ce que la pointe de lecture se situe à 11mm au-dessus du panneau. La pointe de lecture se soulève lorsque la vis de réglage est tournée dans le sens contraire des aiguilles d'une montre.
3. Appuyer sur la touche de relevage du bras pour soulever le bras de lecture.
4. Régler les vis situées à côté de la touche de relevage du bras, de façon à ce que la pointe de lecture se situe à 25,5mm au-dessus du panneau.

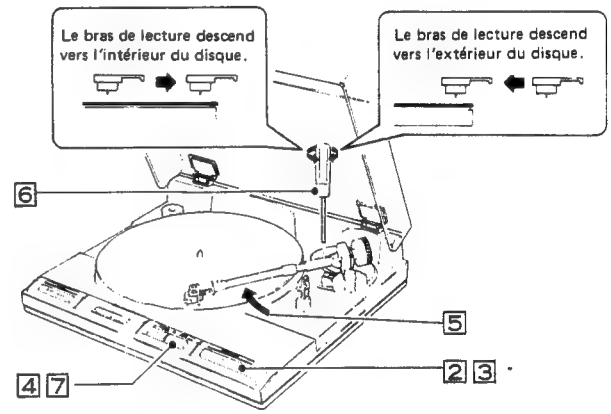


Fig. 11-4 Réglage du point de descente de la pointe de lecture

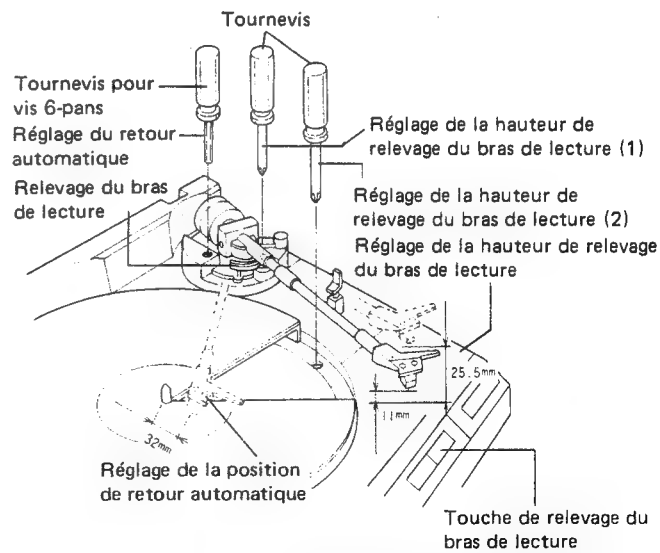


Fig. 11-5 Réglage de la hauteur de relevage du bras de lecture et de la position de retour automatique

11. AJUSTES

11.1 AJUSTE DEL PUNTO DE OPERACION DEL MOTOR

Poner el tocadiscos sobre bloques como se muestra en la Fig. 11-1 y ajustar el motor desde debajo de la base.

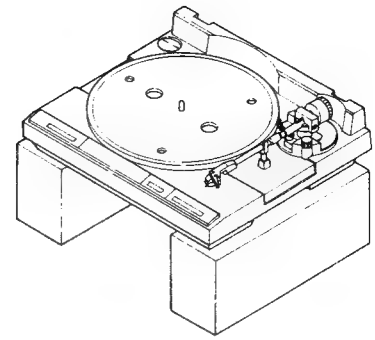
1. Ajustar el giradiscos (motor) a 33-1/3 rpm y presionar el interruptor de inicio/parada (START/STOP).
2. Conectar el amplificador intermedio a la patilla 1 del ICI PA2007 del PCB del circuito del motor como se muestra en la Fig. 11-2 y conectar la salida a un osciloscopio.
3. Una vez aparece la forma de onda mostrada en la Fig. 11-3 en el osciloscopio, ajustar la ganancia del osciloscopio de modo que el pico de la forma de onda de diente de sierra está en la división 5. Luego, ajustar VR1 (33-1/3 rpm) a a:b = 2,7:2,3 como se muestra en la Fig. 11-3. (Tener cuidado porque el ruido se introduce con facilidad.)
4. Al finalizar el ajuste de 33-1/3 rpm, ajustar las 45 rpm con VR2 como se ha descrito en los pasos 2 y 3 de arriba. Ajustar siempre primero las 33-1/3 rpm.
   Ajustar siempre las 45 rpm aunque sólo 33-1/3 rpm estén incorrectamente ajustadas.
5. Conectar un osciloscopio a la patilla 7 de PA2007 y comprobar que la forma de onda sea de 55,5Hz para 33-1/3 rpm y 75Hz para 45 rpm.

11.2 AJUSTE DEL MECANISMO

- **Ajuste de la posición de descenso de la aguja**

Cuando el brazo fonocaptor no desciende en la posición correcta durante la reproducción automática, ajustar de acuerdo con el procedimiento siguiente.

1. Poner un disco de 30cm sobre el plato.
2. Presionar el interruptor de inicio/parada (START/STOP) e iniciar la reproducción automática. Notar la dirección y cantidad si el punto de descenso es incorrecto. (Cuántos mm hacia el interior o exterior de los surcos del disco.)
3. Presionar el interruptor de inicio/parada (START/STOP) para hacer volver el brazo fonocaptor a su posición de apoyo.
4. Presionar el interruptor de elecación del brazo para hacer ascender la aguja.
5. Desplazar el brazo fonocaptor hacia el borde exterior del disco con la mano.



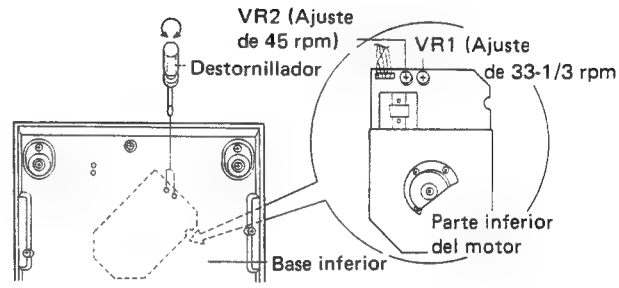


Fig. 11-1 Ajuste de la rotación del motor

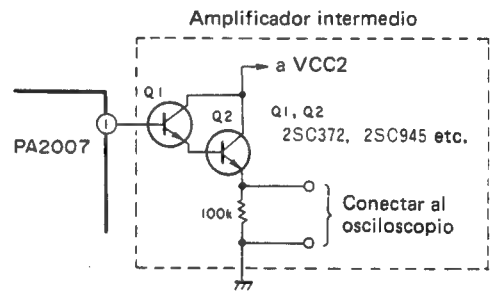


Fig. 11-2 Conexión del amplificador intermedio

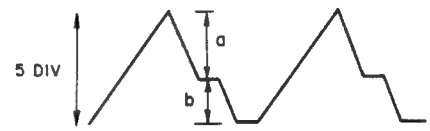


Fig. 11-3 Ajuste de la onda de diente de sierra

6. Girar el tornillo de ajuste con un destornillador pequeño de acuerdo con la dirección y cantidad comprobadas en el item 2 del modo siguiente:
   - Cuando la aguja desciende fuera del disco, girar el tornillo de ajuste en la dirección
   - Cuando la aguja desciende en el interior del disco, girar el tornillo de ajuste en la dirección

   Media vuelta de los tornillos de ajuste desplaza el brazo fonocaptor unos 10mm.
7. Después del ajuste, presionar el interruptor de reproducción/parada (PLAY/STOP) y comprobar si el punto de descenso de la aguja se ha ajustado correctamente.
   Si el ajuste es incorrecto, repetir los items 3 al 6.

Tener cuidado de no dañar el disco ni la aguja al efectuar este ajuste.

Ajuste empleando un disco de prueba

(El ajuste de la posición de descenso se efectúa con el brazo fonocaptor sobre su borde exterior del disco.)

Punto de descenso
para 30cm ..... Desciende entre el cómputo 306 y 313.

Punto de descenso
para 17cm ..... Desciende entre el cómputo 175 y 183.

- **Ajuste de la posición de retorno automático**

Cuando el retorno automático se produce demasiado rápido o demasiado tarde, efectuar los ajustes siguientes.

1. Comprobar la posición de descenso de la aguja. Si la aguja no desciende en la posición correcta, ajustar la posición de descenso.
2. Ajustar el interruptor de elevación del brazo en la posición UP y girar el tornillo de ajuste de retorno automático completamente hacia la izquierda.
3. Desplazar el brazo fonocaptor hacia el interior al máximo.
4. Cuando se giran lentamente los tornillos de ajuste de retorno automático hacia la derecha, el brazo fonocaptor emplezará a moverse hacia el interior.
5. Dejar de girar el tornillo de ajuste en el punto en el que haya un espacio de 32mm entre la aguja de la cápsula y el eje central. (Fig. 11-5)
6. Después del ajuste, compronar que la operación de retorno automático se efectúe correctamente y que la posición de descenso de la aguja sea la correcta.

- **Ajuste de la altura de la elevación del brazo**

1. Presionar el interruptor de elevación del brazo para hacerlo descender.
2. Ajustar el tornillo de debajo del giradiscos de modo que la aguja esté 11mm por encima del panel. Cuando el tornillo de ajuste se gira hacia la izquirda, se eleva la aguja.
3. Presionar el interruptor de elevación del brazo para que se eleve el brazo fonocaptor.
4. Ajustar los tornillos situados al lado del interruptor de elevación del brazo de modo que la aguja quede 25,5mm por encima del panel.

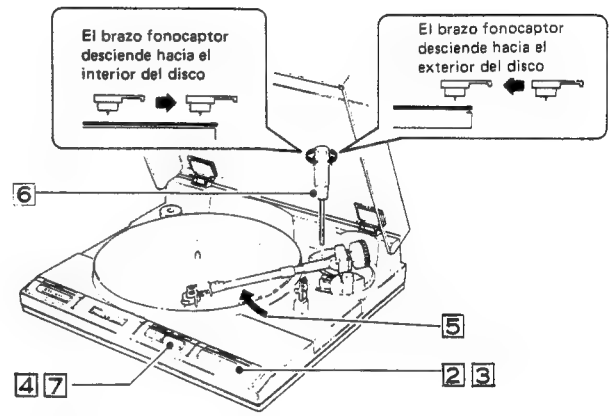


Fig. 11-4 Ajuste del punto de descenso de la aguja

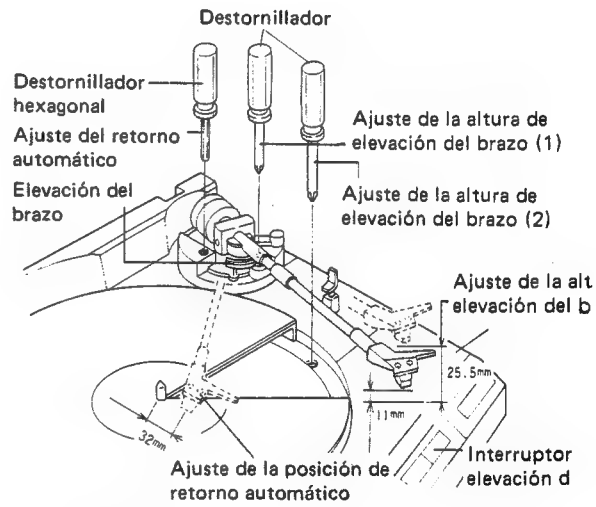


Fig. 11-5 Ajuste de la altura de elevación del br ajuste del retorno automático

12. PRECAUTIONS FOR REASSEMBLY

Follow these directions and precautions when reassembling a unit after completing repairs. Be sure to lubricate as required, make no mistakes when attaching parts, and avoid all other careless mistakes that may be the cause of trouble later on.

12. 1 AREAS THAT REQUIRE LUBRICATION

NOTE:
Types of lubricants and areas where they are used are listed in table 1.

Table 1

Type of Oil	Areas used
Silicon Oil #50000	raising shaft
GYA-008	all other areas

Lubrication points are specified for oils other than GYA-008. Never use a different type of oil.

- **Cam Section**

Apply grease to the heart-shaped grooved section (rear side of the cam) and lock plate sliding section in order to minimize wear on the sliding section and the burden on the mechanism.

- **Driving Plate Assembly**

Decrease the burden on the mechanism and the wear on the sliding section.

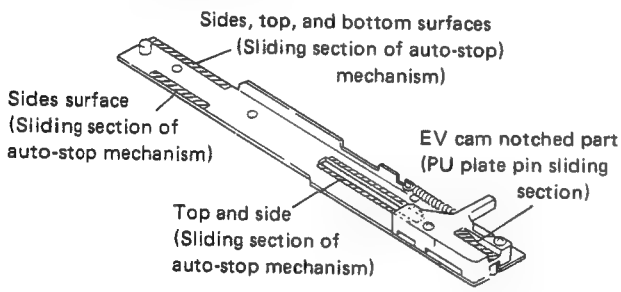


Fig. 12-1 Driving panel assembly section Switch Locker Section

- **Switch Locker Section**

Apply grease to the switch locker (opening) and sub-panel base sliding section to decrease the burden on the mechanism.

When applying grease to the opening (shaft hole), do not apply any grease 2 ~ 3mm from the bottom surface. If grease is applied 2~3mm within the bottom surface, it may come out the bottom and go between the switch lever and sub-panel base causing the switch lever to operate ineffectively.

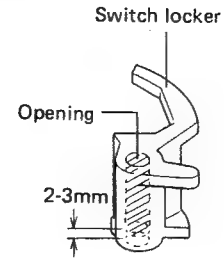


Fig. 12-2 Switch locker section

- **Selector Section**

Apply grease to the surface of the sub-panel base of the selector sliding section to decrease the burden on the mechanism and wear on the sliding section.

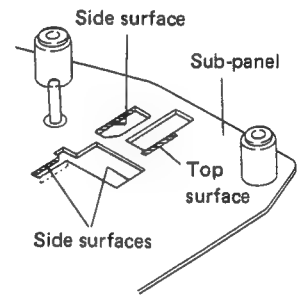


Fig. 12-3 Selector section

- **Reset Plate Section**

Apply grease to the sub-panel base (shaft) and sliding section of the reset plate to decrease the burden on the mechanism.

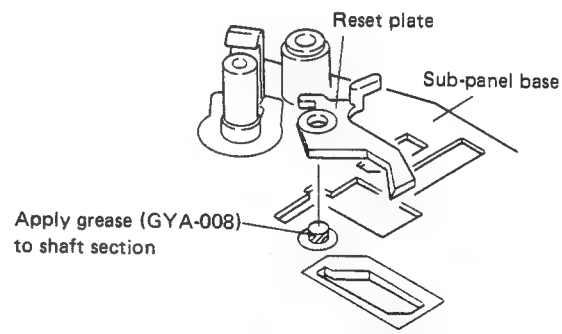


Fig. 12-4 Reset plate section

- **Index Cam Section**

Apply grease to the index cam and lower surface of the hooked section to decrease the burden on the mechanism.

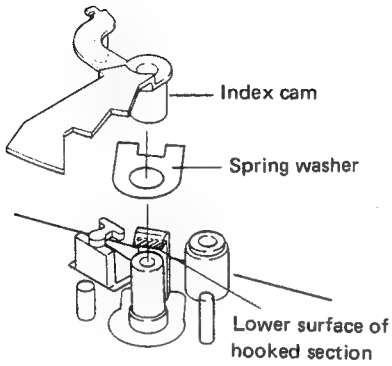


Fig. 12-5 Index cam section

- **EV Sheet Section**

Apply oil to the raising shaft and sliding section of the bearing to assure stability in the elevation lowering speed.

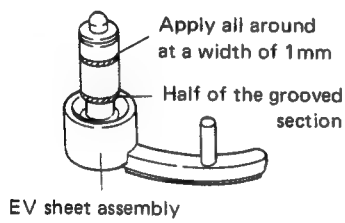


Fig. 12-6 EV sheet section

- **S/S Rod Section**

Coat the S/S rod support section with grease so it operates smoothly.

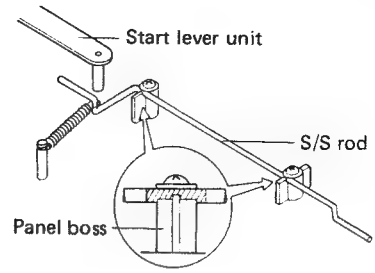


Fig. 12-7 S/S rod section

- **EV Lever Section**

Coat the EV lever shaft section with grease so the EV lever operates smoothly.

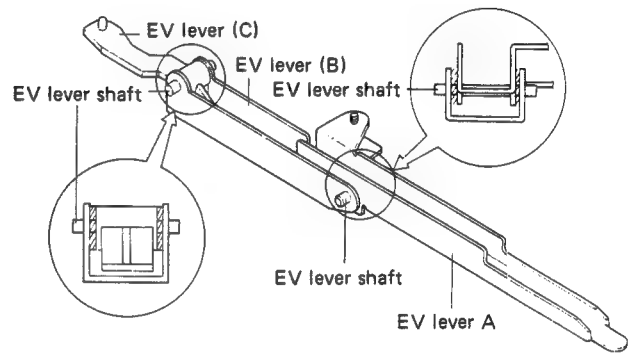


Fig. 12-8 EV lever section

- **Cam section**

Coat the convex side of the cam with grease to prevent cam and timing lever contact section wear.

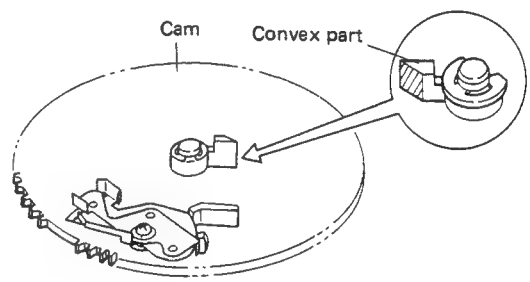


Fig. 12-9 Cam section

12. 2 PRECAUTIONS FOR ATTACHMENT OF PARTS AND REASSEMBLY

- **Reset Plate SP Attachment**

As shown in figure 12-12, the reset plate SP hook is attached by putting the open section on the sub-panel base side.

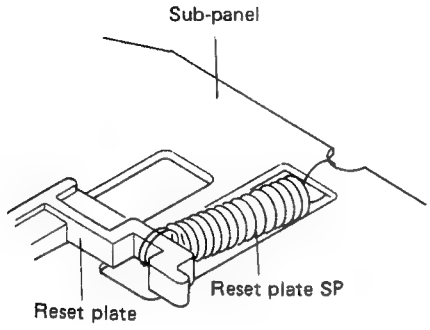


Fig. 12-12 Reset plate SP attachment

- **Cam Assembly Attachment**

The cam assembly is attached by letting the lock plate go in the direction Ⓐ as shown in figure 12-13.

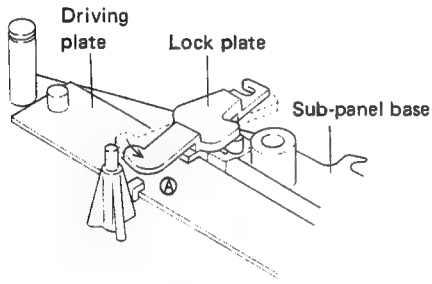


Fig. 12-13 Cam assembly attachment

- **Motor Attachment**

When installing the motor, set the cam in the mechanism stop location and verify that the starting plate section Ⓑ does not protrude beyond surface Ⓐ of the cam. If the motor is attached with the starting plate section Ⓑ protruding, the starting plate may be deformed, the motor pinion gear may be scratched, and the return function may be damaged.

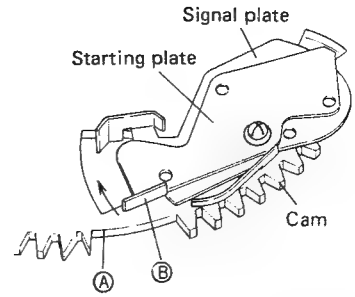


Fig. 12-14 Motor attachment

- **Start Lever Unit Attachment**

Attach the shaft section of the start lever unit as shown in figure 12-15 so that it comes between the reset plate and start panel.

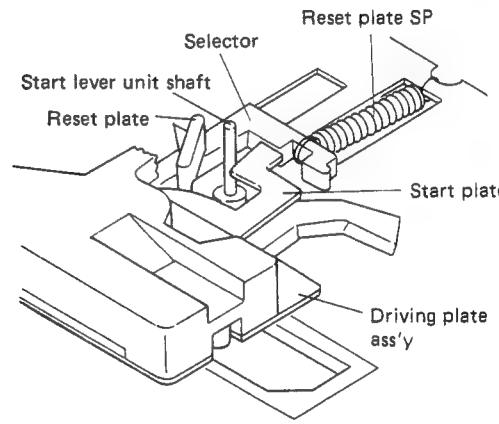


Fig. 12-15 Start lever unit attachment

- **PU Plate Attachment**

Push the PU plate into place so that the PU plate bearing section touches the revolution shaft attachment nut. Installation direction is as shown in figure 12-16.

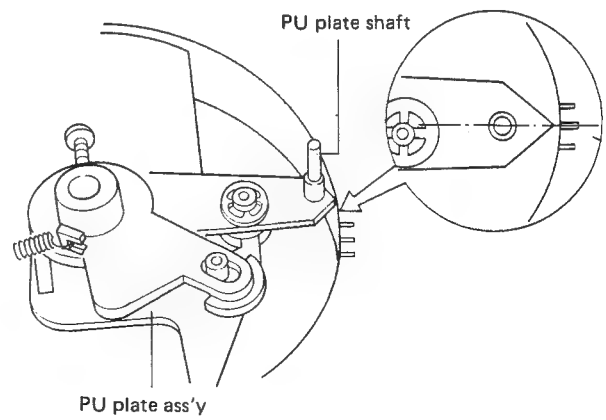


Fig. 12-16 PU plate attachment

• Mechanism Ass'y Attachment

1. PU plate shaft position confirmation

When attaching the arm base section to the mechanism section, put the mechanism section switch locker and switch lever in the locked position and verify that the tonearm is in the arm rest location. Also check that the PU plate shaft is in the position shown in figure 12-17.

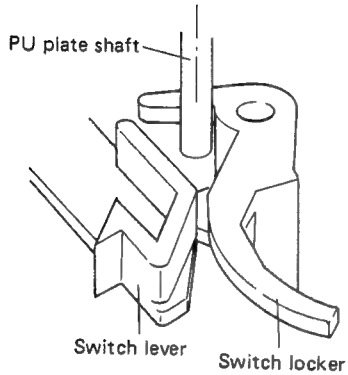


Fig. 12-17 Arm base attachment

2. PU lead wire position confirmation

When attaching the mechanism ass'y to the panel, be careful that the PU lead wire is not pinched at the panel boss as shown in Fig. 12-18.

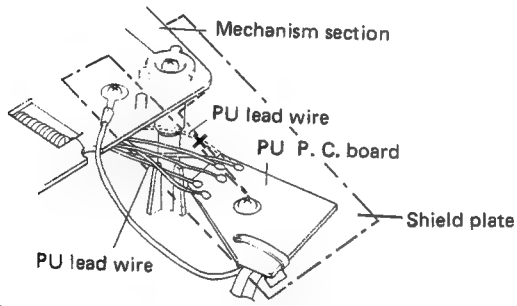


Fig. 12-18 PU lead wire attachment

3. Microswitch lead wire position confirmation

When attaching the mechanism ass'y to the panel, be careful that the lead wires do not contact the select lever as shown in Fig. 12-19. If the lead wires contact the select lever, record size detection will malfunction.

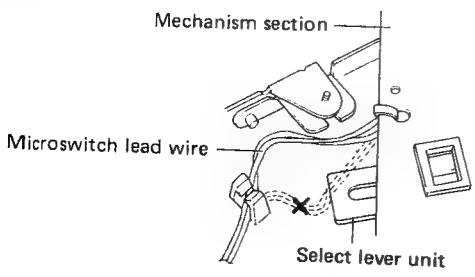


Fig. 12-19 Microswitch lead wire attachment

• EV Lever Pushbutton Switch Attachment

When attaching the pushbutton switch to the EV lever, insert it at the groove at the bottom of the shaft as shown in Fig. 12-20. If it is inserted at the groove at the top of the shaft, arm elevation will not operate.

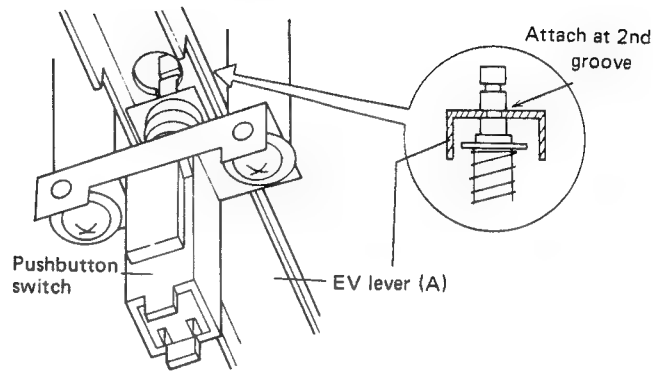


Fig. 12-20 EV lever pushbutton switch attachment

- **Installing the cords**

When installing the PU lead wire and AC power cord, install them to the panel with string as shwon in Fig. 12-21.

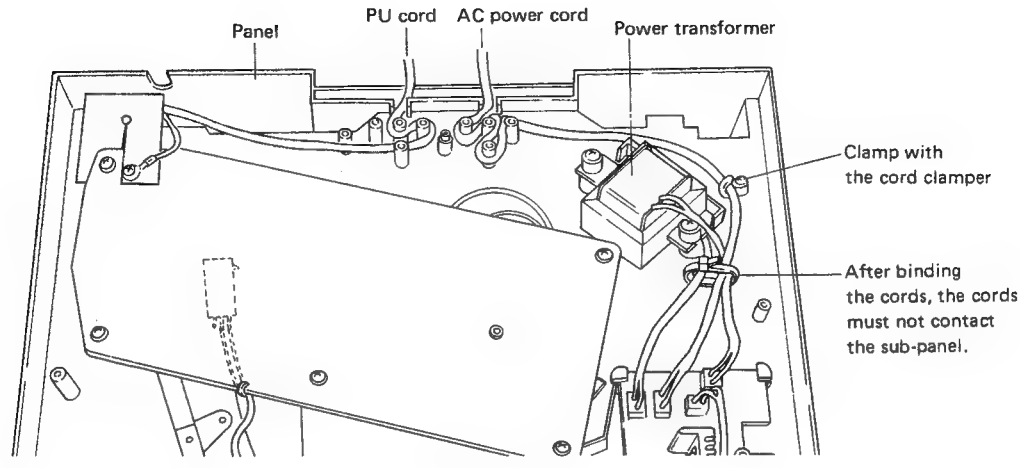


Fig. 12-21 Cords stringing

13. FOR PL-S50/KCT, R, R/G AND WP TYPES

13. 1 PL-S50/KCT, R AND R/G TYPES

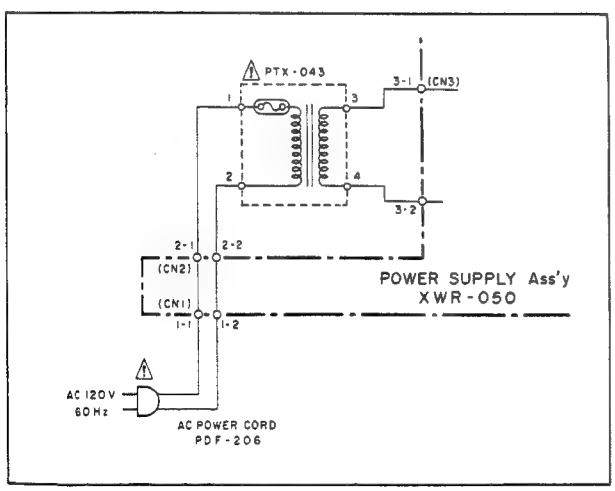
PL-S50/KCT, R and R/G types are the same as the PL-S50/KUT type except for following sections.

Contrast Parts

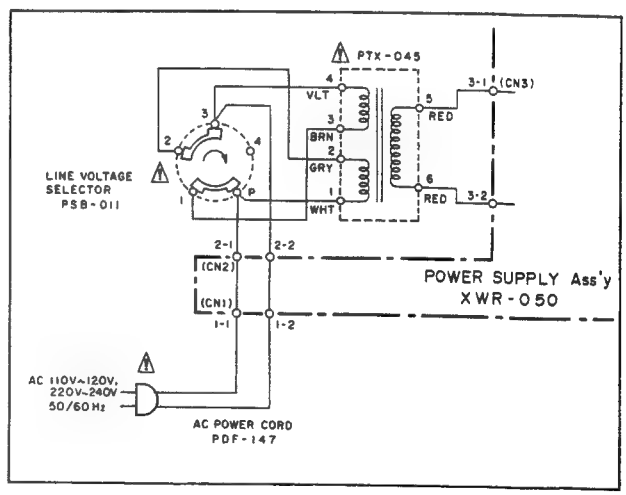
Mark	Symbol & Description	Part No.				Remarks
		KUT type	KCT type	R type	R/G type	
	Panel	PNY-118	PNY-118	PNY-119	PNY-119	
⚠ ★	Power transformer assembly (120V)	PTX-042	PTX-043	. . .	. . .	
⚠ ★	Power transformer assembly (110V ~ 120V, 220V ~ 240V)	. . .	. . .	PTX-045	PTX-045	
⚠	AC power cord assembly	PDF-206	PDF-206	PDF-147	PDF-147	
⚠	Connector assembly	. . .	. . .	PDE-235	PDE-235	
⚠ ★	Line voltage selector	. . .	. . .	PSB-011	PSB-011	
	Screw 3 x 10 (For line voltage selector)	. . .	. . .	IPZ30P100FMC	IPZ30P100FMC	
	Cartridge (Without stylus)	. . .	. . .	PXV-928	PXV-928	
	Cartridge mounting screw (W)	. . .	. . .	PBA-909	PBA-909	
	Packing case	PHH-095	PHH-112	PHH-096	PHH-056	
	Top pad (For packing)	. . .	. . .	. . .	PHC-049	
	Operating instructions (Spanish)	. . .	. . .	PRC-006	. . .	

Schematic Diagram

FOR KCT TYPE



FOR R, R/G TYPES



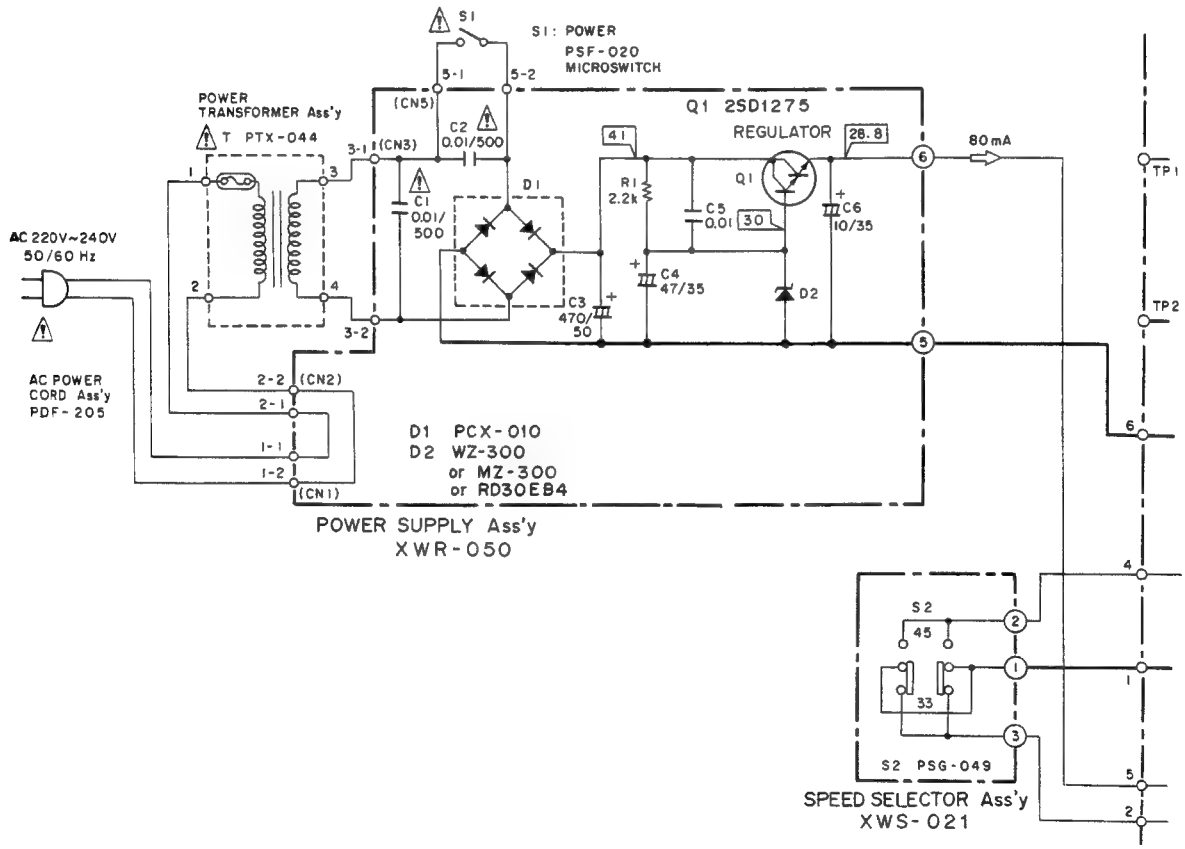
13. 2 PL-S50/WP TYPE

PL-S50/WP type is the same as the PL-S50/KUT type except for following sections.

Contrast Parts

Mark	Symbol & Description	Part No.		Remarks
		KUT type	WP type	
	PU cord assembly	PXB-345	PXB-333	
⚠ ★	Power transformer (120V)	PTX-042	. . .	
⚠ ★	Power transformer (220V ~ 240V)	. . .	PTX-044	
⚠	AC power cord assembly	PDF-206	PDF-205	
	Cartridge (Without stylus)	. . .	PXV-928	
	Cartridge mounting screw (W)	. . .	PBA-909	
	Packing case	PHH-095	PHH-096	

Schematic Diagram



14. FOR PL-740/KU, R/G, WE, WB AND WP TYPES

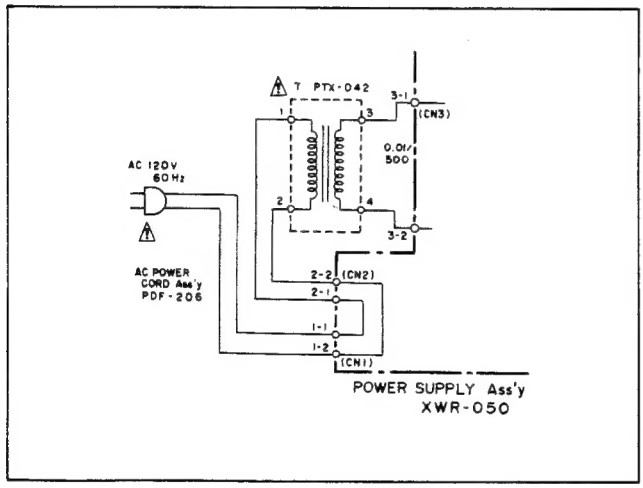
14. 1 PL-740/KU

PL-740/KU type is the same as the PL-S50/KUT type except for following sections.

Contrast Parts

Mark	Symbol & Description	Part No.		Remarks
		PL-S50/KUT type	PL-740/KU type	
	Panel	PNY-118	PNY-120	
	Cartridge (Without stylus)	. . .	PXV-928	
	S/S button unit	PAD-134	PAD-137	
	EV button unit	PAD-135	PAD-138	
	SP button unit	PAD-136	PAD-139	
	Packing case	PHH-095	PHH-097	
	Cartridge mounting screw (W)	. . .	PBA-909	
	Operating instructions (English)	PRB-246	PRB-247	

Schematic Diagram



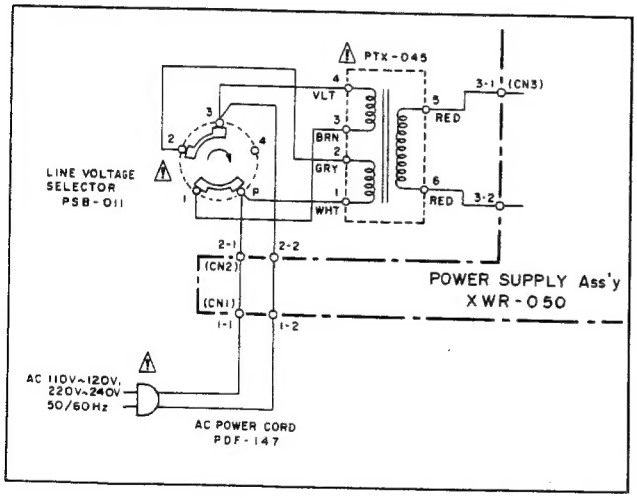
14. 2 PL-740/R, R/G TYPES

PL-740/R and R/G types are the same as the PL-S50/KUT type except for following sections.

Contrast Parts

Mark	Symbol & Description	Part No.			Remarks
		PL-S50/KUT type	PL-740/R type	PL-740/R/G type	
	Panel	PNY-118	PNY-121	PNY-121	
	S/S button unit	PAD-134	PAD-137	PAD-137	
	EV button unit	PAD-135	PAD-138	PAD-138	
	SP button unit	PAD-136	PAD-139	PAD-139	
	PU cord assembly	PXB-345	PXB-333	PXB-333	
⚠ ★	Power transformer (120V)	PTX-042	. . .	. . .	
⚠ ★	Power transformer (110V ~120V, 220V ~240V)	. . .	PTX-045	PTX-045	
⚠	AC power cord assembly	PDF-206	PDF-147	PDF-147	
⚠	Connector assembly	. . .	PDE-235	PDE-235	
⚠ ★★	Line voltage selector	. . .	PSB-011	PSB-011	
	Screw (for line voltage selector)	. . .	IPZ30P100FMC	IPZ30P100FMC	
	Cartridge (Without stylus)	. . .	PXV-928	PXV-928	
	Cartridge mounting screw (W)	. . .	PBA-909	PBA-909	
	Packing case	PHH-095	PHH-098	PHH-098	
	Spacer (for packing)	. . .	. . .	PHC-092	
	Operating instructions (English)	PRB-246	PRB-247	PRB-247	
	Operating instructions (Spanish)	. . .	PRC-007	. . .	

Schematic Diagram



14. 3 PL-740/WE, WB AND WP TYPES

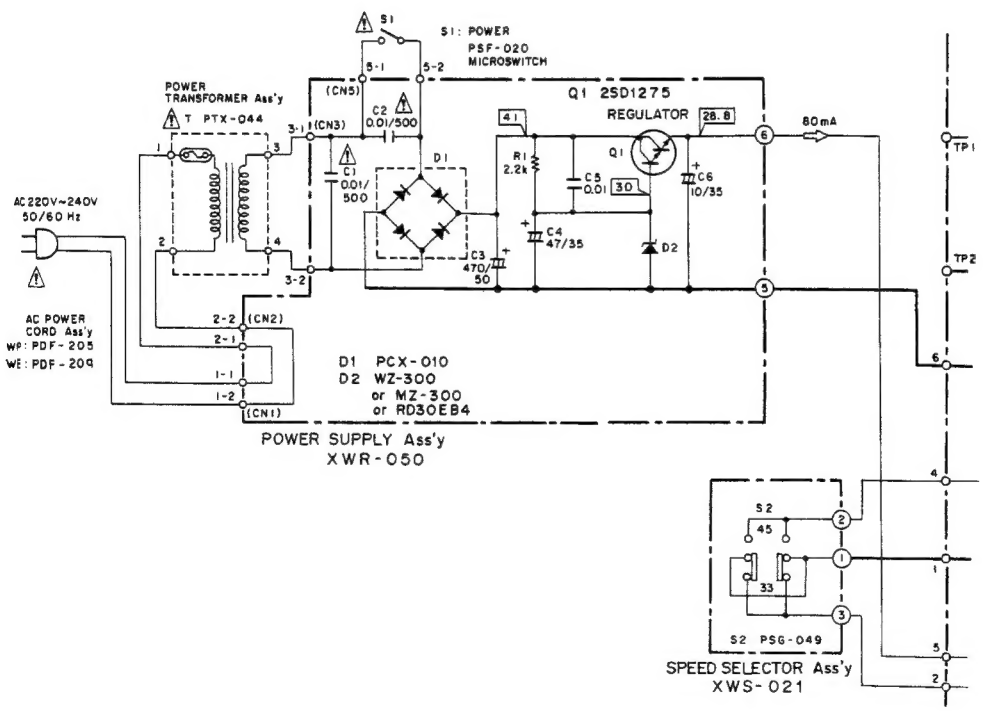
PL-740/WE, WB and WP types are the same as the PL-S50/KUT type except for following sections.

Contrast Parts

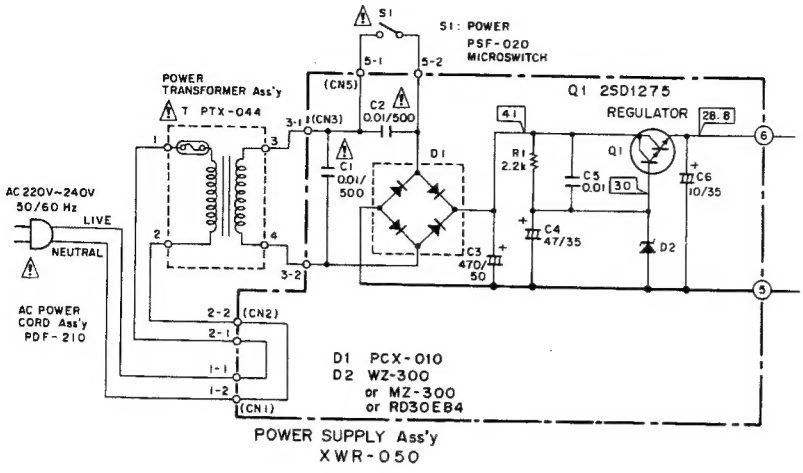
Mark	Symbol & Description	Part No.				Remarks
		PL-S50/KUT type	PL-740/WE type	PL-740/WB type	PL-740/WP type	
	Panel	PNY-118	PNY-120	PNY-120	PNY-120	
	S/S button unit	PAD-134	PAD-137	PAD-137	PAD-137	
	EV button unit	PAD-135	PAD-138	PAD-138	PAD-138	
	SP button unit	PAD-136	PAD-139	PAD-139	PAD-139	
	PU cord assembly	PXB-345	PXB-333	PXB-333	PXB-333	
⚠ ★	Power transformer (120V)	PTX-042	. . .	. . .	. . .	
⚠ ★	Power transformer (220V ~240V)	. . .	PTX-044	PTX-044	PTX-044	
⚠	AC power cord assembly	PDF-206	PDF-209	PDF-210	PDF-205	
	Cartridge (without stylus)	. . .	PXV-928	PXV-928	PXV-928	
	Cartridge mounting screw (W)	. . .	PBA-909	PBA-909	PBA-909	
	Packing case	PHH-095	PHH-098	PHH-098	PHH-098	
	Operating instructions (English)	PRB-246	. . .	PRB-247	PRB-247	
	Operating instructions (English/German/French/Italian)	. . .	PRE-017	. . .	. . .	

Schematic Diagram

FOR WE, WP TYPES



FOR WB TYPE



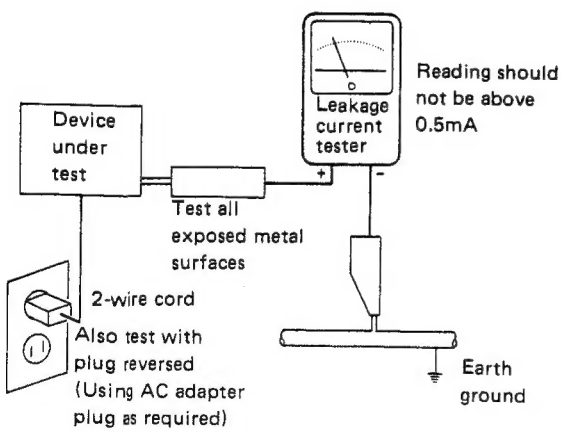
15. SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service tecnician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.